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The Resources of

NOVA SCOTIA

CANADA

ITS DEVELOPMENT AND OPPORTUNITIES

[Ed. 2., 1923]

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Homeward Bound! Sea-going Barque being brought to her wharf at Bear River

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The Resources of Nova Scotia

Compiled for the Use of Settlers and Investors from Material Supplied Mainly by Federal and Provincial Services

[2nd. edition]

NATURAL RESOURCES INTELLIGENCE SERVICE

F. C. C. LYNCH, Superintendent

[19231

DEPARTMENT OF THE INTERIOR

CANADA

HON. CHARLES STEWART
Minister

W. W. CORY, C.M.G.
Deputy Minister

62896—1½

"I don't know what more you'd ask: Almost an island, indented everywhere with harbours, surrounded with fisheries—the key of the St. Lawrence, the Bay of Fundy, and the West Indies; prime land above, one vast mineral bed beneath, and a climate over all temperate, pleasant and healthy. If that ain't enough for one place, it's a pity—that's all."

—*Sam Slick of Slickville* (Haliburton).

FOREWORD

The facts in this booklet are compiled for the use of the home-seeker, merchant, manufacturer, capitalist, and visitor. They purpose to be up-to-date, authoritative, concise.

The Dominion Government fathers all nine Provinces alike and all nationalities therein that owe allegiance to the Crown. Its interests are those of that member of the Imperial Body named Canada, and herein are set down the special claims to consideration of that member of the Dominion named Nova Scotia.

When a man with the world before him is choosing a place to visit, or in which to work, to invest, or settle, there are definite facts that he will wish to know. In this booklet we state such facts, each of which will interest one reader if not another. His final choice may result from a cool balancing of the answers to a series of questions running in his mind, but his peculiar temperament or past experience may magnify the importance of some facts or cause him to look through the wrong end of the field glasses at others. Thus a man in search of sunshine may make for a country where for nine months of the year all is dust, which he will be glad to change before long for a land of mildew: the sight of a nugget may take a man to the Yukon, but a chance illustration of apple-picking may move him back to Nova Scotia.

When a reader's interest is aroused, his plan of action may be simplified by getting in touch with the

NATURAL RESOURCES INTELLIGENCE SERVICE,
DEPARTMENT OF THE INTERIOR,
OTTAWA.

The Natural Resources Intelligence Service acknowledges with thanks the assistance given by the Departments and Branches both of the Dominion and Provincial Governments, which have examined and corrected such sections of this compilation as fall within their respective spheres and whose publications have been freely used.

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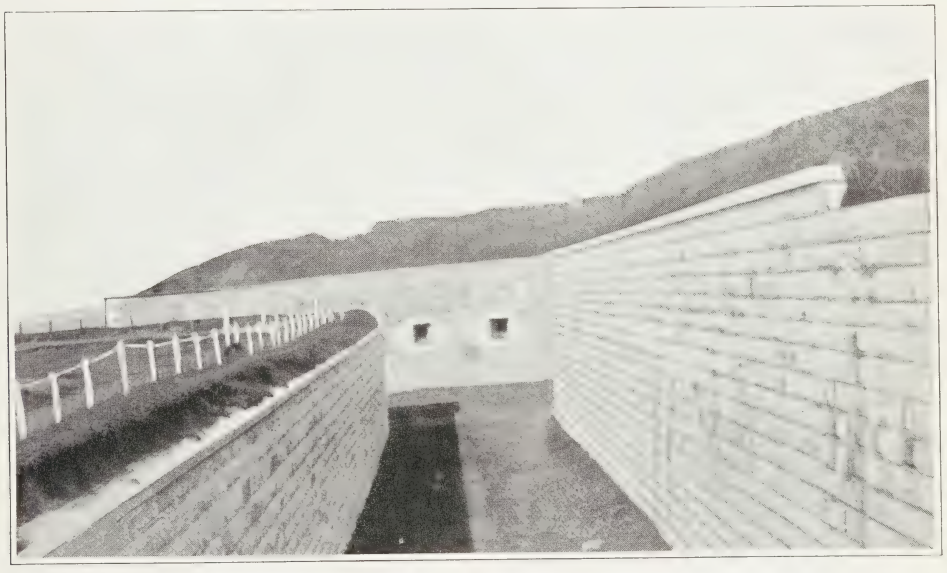
NOVA SCOTIA

IT is now 425 years since the little ship "*Matthew*," "sometime stayed" on her course by schools of cod, carried John Cabot to hoist the Royal Standard on Cape Breton island.

The attempted settlement of Nova Scotia itself was the only Scottish colonial enterprise undertaken by a purely Scottish King, for the canny James VI, before leaving Edinburgh to be crowned as James I of England, was already turning the claims of Henry VII into cash and selling "Baronetcies of Nova Scotia" to such as would buy real estate in "Acadia" from his factor, Sir W. Alexander. Few British settlers, however, came, and for the next century the land was French. It was not till the foundation of Halifax in 1749, after the Peace of Aix-la-Chapelle had restored Louisburg to the French, that the British stock took firm root.

The final surrender of Louisburg to Admiral Boscawen ("Old Dreadnought") and Wolfe marked the end of the French regime. Louisburg—the mighty fortress forming the first link of the chain that France in the 18th century



The Moat of the Citadel at Halifax

was stretching to hem in the British from the Atlantic to the Gulf of Mexico—is now the winter port of the Dominion Coal Company. Halifax, planted as her rival, remains the gateway to Canada and a base of the Imperial Navy in the North Atlantic.

On the east coast of Cape Breton island, where the younger Cabot landed in 1489, the seams of coal, described by early voyagers as threading the cliffs and worked with crowbars for French and British cargoes, were the outcrop

of what has proved to be the great and only coal field on the Atlantic seaboard of North and South America. At the opposite end of the province lies "Acadia," a name identified by romance with the "Grand Pré"—once the only space left clear by nature in the forest that spread unbroken from Cape Breton to the undiscovered prairies. Here is Annapolis Royal, the capital of Nova Scotia till 1750, and the oldest European settlement north of Florida. For a century, from its foundation as Port Royal after the visit of Champlain in 1604, it had a record of attack, capture and recapture, until finally taken by New Englanders and renamed for Queen Anne in 1710.

Picture, then, Nova Scotia, including Cape Breton island, as one long peninsula, 374 miles in length by 60 to 100 miles in width, enriched with black diamonds on the east, and with gold-medal apples on the west; a peninsula fringed by waters teeming with fish, with a southerly coast of land-locked harbours

Cannon at Old Fort, Annapolis Royal. Relics of the days when the Fort was a storm centre of America

inviting trade with the West Indies, Latin America, Africa and Europe; and, passing through the twelve-mile-wide isthmus of Chignecto, transcontinental trains carrying travellers, freight and mails to and fro for 3,000 miles between Halifax and Pacific ports.

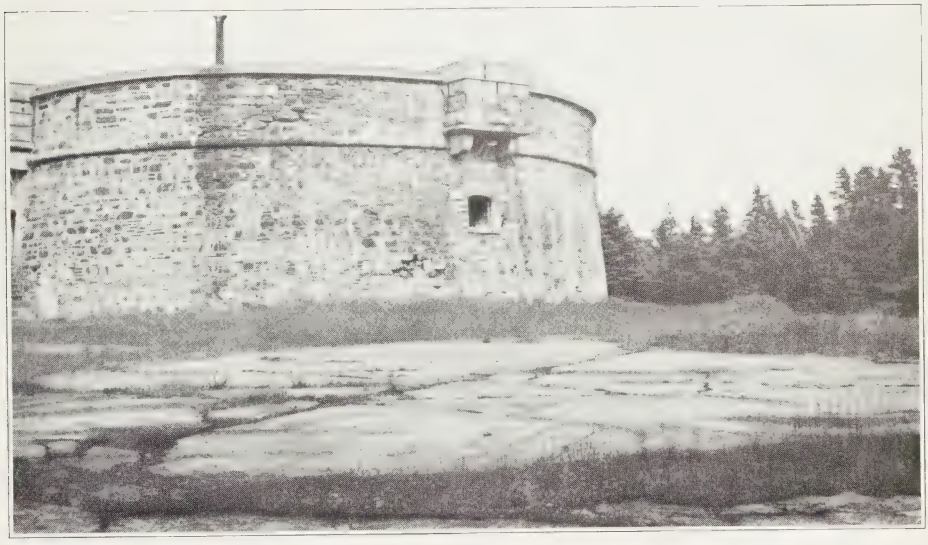
The mail question is near to the heart of a Nova Scotian, for was it not Samuel Cunard, Halifax merchant, trader between Newfoundland, Boston and Bermuda, who first evolved the plan of an Atlantic steam-mail service, and who with Burns and McIver formed the Cunard Company and sent the *Britannia* paddling across in 1840? With delivery of mail by airplane rather than by railway a probability of the near future, Nova Scotia, with a balance of 558 miles in its favour over New York, will be the logical landing-place for the bags.

ORIGIN OF THE POPULATION

Of the half million inhabitants about 80 per cent are of British descent and 10 per cent of French.

The French were the first to get a footing, mainly in Acadia. Here the salt marshes, needing no clearing, were especially attractive to the French from the mouth of the Loire, whose fathers had reclaimed and dyked such lands for generations. In Acadia and Cape Breton there were no large seigneuries as along the St. Lawrence, but just communities of peasants or fishermen. In the middle of the seventeenth century Louis XIV granted Cape Breton Island to one Nicholas Denys, who has left us an account of the early fishing stations, their methods of curing fish and the outcropping of coal. When, after the treaty of Utrecht (1713), Louisburg was fortified to guard the mouth of the St. Lawrence and protect the fishing fleet, the French population of Cape Breton grew.

The first body of British to settle in Nova Scotia were the 2,500 disbanded soldiers who, on June 21, 1749, sailed in to clear the forest round Chebucto bay for the site of Halifax, to which city the capital was moved from Annapolis. Soon after came 2,000 Hanoverians, who founded Lunenburg, and were reinforced by others at the close of the Seven Years' War in 1763. A little later 200 High-



Martello Tower, Point Pleasant Park, Halifax

landers were brought to Pictou Harbour—the first wave of the 25,000 who before 1828 settled in Cape Breton Island and in Pictou and Colchester counties; for after 1745 the Highland clansmen were the unemployed, and sought fresh fields for action. Across the sea the dormant industrial quality awoke and, stiffened by the fighting instinct, put many of their descendants in the front rank of commercial and political enterprise.

At the close of the American Revolutionary War Nova Scotia welcomed the third great influx of population, in 28,000 of the United Empire Loyalists, 3,000

of whom founded Sydney, while another 10,000 settled at Shelburne and other places, mainly in Digby county, the rest moving westward to New Brunswick and Quebec.

The number of British settlers was increased about a hundred years ago by grants of land of 100 to 10,000 acres to the disbanded soldiers and sailors of the King. To-day the grandsons of these grantees fill many of the most important positions in the Dominion. This Anglo-Celtic stock supplied in 1758 the twenty-two members of the first representative government in the Empire overseas and the Council of Twelve that ruled Nova Scotia until overthrown by Joseph Howe in the interests of a wider democracy. Joseph Howe, orator and statesman, is an outstanding figure in Nova Scotian history. It was said by Lord Grey that the British Empire owed her stability to his foresight, and that the book containing his speeches and writings ought to be found on a shelf in every portion of the British Empire. Nova Scotia also claims among her sons Sir Charles Tupper, one of the "Fathers of Confederation," and three out of the nine Prime Ministers of Canada, including Sir Robert Borden, who was the first Canadian Minister to sit in the Imperial Cabinet and was the Dominion representative at the Peace Conference of 1919.

GOVERNMENT

Nova Scotia became part of the Dominion of Canada under the British North America Act of 1867. Its government is vested in:—

(1) A Lieutenant-Governor, appointed by the Governor General in Council, *i.e.*, on the advice of the Cabinet at Ottawa.
(2) A Legislative Council of twenty-one, named by the Executive and holding office for life.
(3) A Legislative Assembly, elected by forty-three constituencies.
(4) An Executive Council of ten (1923) ministers, with or without portfolios, named by the Provincial Premier representing the majority in the Assembly.

Each of the eighteen counties has two members of the Legislative Assembly; there are three additional members for Halifax county, two for Cape Breton, and one each for Pictou and Cumberland.

The province is represented at Ottawa by ten senators and sixteen members of the House of Commons.

Nova Scotia, as the other provinces, receives an annual subsidy from the Dominion Government. This amounted to $636,666 in 1922, the largest item being a grant of 80 cents per head of the population.

Under the Federal Act of May 24, 1918, it is enacted that every female person shall be entitled to vote at a Dominion election who,—

(1) is a British subject;
(2) is of the full age of 21 years;
(3) possesses the qualifications which would entitle a male person to vote at a Dominion election within the province.

Under the Nova Scotia Elections Act and amendments thereto a female person is entitled to vote at an election for the Legislative Assembly.

The proportion of females to males in 1921 was 49.13 to 50.87.

RELIGION

The 523,837 inhabitants, by the census of 1921, are divided according to their religious beliefs in these proportions:—

Roman Catholic (French and Scotch)	30·6 per cent
Presbyterian	20·9 "
Baptist	16·5 "
Anglican	16·3 "
Methodist	11·2 "
Various	4·5 "

Under the British North America Act of 1867, which since Confederation has regulated the relations between the Dominion and Provincial Governments, freedom in religious matters is guaranteed to all.

Under the powers given in section 93 of the above Act each province has passed regulations concerning religious or devotional exercises at the opening

Parliament Buildings, Halifax, built in 1818. In this building was adopted the first resolution looking to Canadian Confederation

and closing of school. As a rule, except in the case of Roman Catholic segregated schools, denominational teaching is excluded, but there is generally provision for instruction in the principles of Christian morality. In every province the school law contains a "conscience clause," permitting the withdrawal of the pupil by the parent or guardian for the period of religious instruction. In Nova Scotia the question of devotional exercises is left to the local board of school trustees.

EDUCATION

Within the last fifty years education in Nova Scotia has been revolutionized. In 1863 it is said that less than half of the children between 5 and 16 could read or write, but Sir Charles Tupper, in spite of fierce opposition, forced through the Assembly the Free School Act of 1864, which is the basis of the present system.

Education in Nova Scotia is compulsory for all children between 5 and 16 in cities and towns and between 7 and 12 in rural districts. The statutory limit for child labour is 14 years, but under the "Towns Incorporation Act" many towns have raised the working age to 16 years unless the child has reached a certain school grade. About 21 per cent of the population is enrolled in the public schools. In 1921 the attendance was distributed thus:—

In common school grades	99,778
" high "	9,705
" technical schools	3,399
Total	112,882

The Superintendent of Education is the Deputy Minister of Education who is also Secretary of a Council of Public Instruction which consists of the members of the Executive Council and of the Cabinet. An educational grant to fully meet the recommendations of the Council is therefore ensured.

The system of education is a 12-year public school course, of which the first 8 grades are known as the "Common School," and the remaining 4 as "High School." As an alternative to the high school course a pupil's education can be continued in the "County Academy."

Graduation at the close of the 12-grade course qualifies for entrance at the universities and various technical or vocational colleges. There are ten degree-conferring bodies in the province:—

Dalhousie University, founded in 1818, Halifax	students	677
Kings College, " 1791, Windsor, Anglican	"	135
Acadia University, " 1839, Wolfville, Baptist	"	333
St. Francis Xavier, " 1866, Antigonish, Roman Catholic	"	197
Nova Scotia College of Agriculture, Truro	"	73
" " Technical College, Halifax	"	32
Holy Heart Seminary, Halifax	"	92
Ste. Anne College, Church Point	"	87
Presbyterian College, Halifax (theology)	"	37
St. Mary's College, Halifax, Roman Catholic	"	10
Total students enrolled for the regular courses in 1921		1,673

The four universities take turns in the privileges of the Cecil Rhodes Bequest, under which a scholarship of $1,500 a year or more for a three-years' course at Oxford University is periodically assigned for competition.

The training of teachers is the special function of the Provincial Normal College at Truro. which is in close touch with the Provincial College of Agriculture. About 250 teachers are in training. There are five classes of teachers, of which the highest grade, named "Academic," implies graduation from a university of recognized standing and normal training. The average salaries for each class in 1921 were:—

Male	Academic	$1,882	A.	$1,471	B.	$1,074	C.	$791	D. $471
Female	"	1,291	"	907	"	687	"	557	" 431

Technical Education

The Technical College at Halifax was founded as the administrative centre and unit for the most advanced work in the comprehensive system of technical education established by the legislature in 1907. The two-years' course of intensive professional training ending in a B.Sc. degree in civil, electrical, mechanical and mining engineering follows on a uniform preliminary two-years'

The Technical College, Halifax, founded by the Nova Scotia Legislature, in 1907

course at any of the four universities of Nova Scotia. The tuition fee is $75, and a scholarship providing free tuition is granted every year in each of the eighteen counties.

Technical education of a very high order has thus been made possible to ambitious and intelligent students in any class of life.

Short courses at the Technical College of three months, from January to April, are also supplied at a fee of $15 for each subject to any applicant who has passed the eighth grade of the common school and has also had some practical experience in some branch of industry.

Evening technical classes are maintained in twelve industrial centres and in thirteen colliery communities throughout the province between October and May. There is a choice of 41 subjects, distributed according to the industrial needs of each community, taught by men engaged in practical work in the day time. There are no fees, but a returnable deposit of $3 is required as an evidence of serious purpose. In 1921 there were 2,435 young men and women taking courses.

Besides the above opportunities for education, a recent extension has been the series of home-study or correspondence classes for those engaged in isolated lumber camps or farms. Upwards of fifty subjects are thus taught in a variety of courses, viz.:—College preparatory including Latin and French,

business, drafting, domestic science and industrial. The fees for the courses vary from $3 to $20 and are below the actual cost.

The Technical Education Branch attempts to provide the widest range of opportunity all over the province for those who seek knowledge.

Halifax Navigation School

This school has quarters at the Technical College, and offers instruction to sea-faring men preparing for certificates as mates and masters of vessels from tugboats to ocean liners. Tuition, text books and apparatus are provided free of cost. The school is maintained on a co-operative basis between the Halifax Technical College and the Dominion Department of Marine and Fisheries.

Women's Institutes

These Institutes do much to develop the community spirit in rural districts by arranging courses in home economics, cooking and dressmaking, in particular for the wives of returned soldiers and for girls. Valuable service is also done in securing sanitary conditions, water supply, libraries, etc., for schools, in visits to hospitals, and in promoting child welfare. In 1921 the Institutes numbered seventy-five and the members 2,576.

An Act of 1917 established a court for juvenile delinquents, with a special superintendent for neglected or delinquent children, provided for the formation of Children's Aid Societies and regulated the employment of the young.

Public Health Work

In 1922 fourteen specially trained nurses were doing generalized public health work in the various counties. All the schools are visited, and nearly 40,000 children are examined for possible defects. In February, 1922, the Massachusetts-Halifax Health Commission had 2,200 families under their supervision.

Under the public school dental clinic system, maintained also at New Glasgow and Sydney, 700 Halifax children who cannot afford private dental service receive yearly free dental treatment in the Forrest Building of Dalhousie University. An X-ray service is also given to all who need this attention.

CLIMATE

Under the influence of the Gulf Stream, which runs northeasterly and parallel to the cost of Nova Scotia till it meets the Arctic current flowing south, the climate of the province is tempered. The minimum temperature on record for Halifax is $-17°$ and the maximum $98 \cdot 7°$, and for Yarmouth $-11 \cdot 7°$ and $84 \cdot 3°$. Apart from the Gulf Stream, the presence of the ocean affects the southern coast much as the climate of Toronto is affected by the presence of lake Ontario. The mean winter climate registered at Toronto and Halifax was identical in 1916 ($27 \cdot 8°$) and 21° higher than at Winnipeg. The summer mean was $62 \cdot 6°$, as compared with $69 \cdot 4°$ at Toronto and $65 \cdot 1°$ at Winnipeg.

These climatic conditions of the seaboard are of vital interest to Canada, for they supply her with a line of harbours open all the year round from Cape Breton to St. John, New Brunswick, in the Bay of Fundy.

The records of the world's average yearly precipitation run from 458 inches in Assam (905 in 1861) to 2 inches at Port Said, but for useful comparison we may take London, Edinburgh and European capitals in general which show a fall of from 20-30 inches. In a country where during the growing season the sun is powerful and which depends agriculturally so much on pasturage, fruit and general farming, an abundance of rain is important in the absence of irrigation. The average total precipitation for nineteen years was 42·46 inches at Yarmouth, 49·43 at Halifax, and 41·10 at Sydney. In the same period at these points the snowfall averaged 82·2, 76·7 and 92·8, respectively. Ten inches of snow are considered as equal to one inch of rain.

The normal hours of sunshine in a year at Yarmouth are 1,864.

Where snow lies for months continuously, the more there is, the better for transport and agriculture in season. The cold Canadian winter with proper appliances for heating, furs, sleighs, skis, snowshoes and skates has earned more praise than blame, and is balanced by the abundance of sunshine, a "fall" of surpassing crispness and colour, and a summer perfect in its ripening power.

Health

The death rate stood at 12·2 per 1,000 in 1921, the lowest rate since 1909 when definite figures are first available, while the birth rate was 24·7. In the decade previous to 1921 the lowest death rate was 14·34 (1912) and the highest birth rate 26·08 (1915). The death rate of infants was 116·5 to every 1,000 births. The Nova Scotian physique needs no comment. On sea and land and in the air during the great war the world had a moving picture of the type of men the province contributes to the Empire.

POPULATION STATISTICS

(Census of 1921)

The total population on June 1, 1921, was 523,837, an increase of 6·4 per cent over that of 1911. For all Canada in the same period the increase was 21·95 per cent and the total 8,788,483.

The area of Nova Scotia is 21,427 square miles and the density of population 24·4 to the square mile.

As in the other provinces excepting British Columbia and Manitoba there was an increase of the urban over the rural population, namely 43·02 per cent urban and 56·98 rural in 1921, as compared with 38·33 urban and 61·67 rural in 1911.

The cities and towns that showed an increase of more than 1,000 in their population since 1911 were:—

	Population	Increase
Halifax	58,372	11,753
Sydney	22,545	4,822
Dartmouth	7,899	5,058
New Glasgow	8,974	2,591
Truro	7,562	6,107
Stellarton	5,312	1,402
North Sydney	6,585	1,167
Sydney Mines	8,327	1,095
Amherst	9,998	1,025

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The counties that showed a decrease in population were Antigonish, Guysboro, Queens, Richmond, Shelburne, Victoria, Yarmouth.

Indians

The Nova Scotia Indians are Micmacs of the Algonquin stock. Most of them are farmers in a small way, raising hay, potatoes and vegetables, horses and cattle, but no sheep and few pigs. Many work as day labourers, others engage in basket work and the smaller wood industries; others find employment in lumbering, hunting and trapping and as guides for sportsmen.

The nineteen agencies have an aggregate population of 2,031, of whom 2,006 are Roman Catholic. The acreage of reserves is 21,730, valued at $88,700; of this 2,383 are "cultivated" but only 374 acres are used for hay, grain and roots. The total value of the Indian real and personal property is $272,650, their income from all sources averaging $81 per head. The local cost to the Dominion Government for 1920-21 amounted to $46,083.19.

Lunenburg Harbour, Home Port of the greatest Fishing Fleet in America

THE FOUR BIG INDUSTRIES

FISHERIES

The Maritime Provinces stand in a somewhat similar relation to the world-supply of fish as the Prairie Provinces to that of wheat, the fish on the provincial coat-of-arms indicating the importance of this industry from the first. Each region has a supply of feed "inexhaustible" in theory and under intelligent care inexhaustible in fact. The shallow feeding ground of "The Banks," supplementing those of the North Sea, supplied Europe with fish before John Cabot came to Labrador in 1497, and to the last day the fish that haunt them will try to spawn in and around the 5,000 miles of indented coast in the North Atlantic. Even in 1600 the English had 200 sail and 8,000 men working off Newfoundland.

The fisheries of the Maritime Provinces since Confederation have been under the control of the Dominion Government. The Department of Marine and Fisheries prevents the pollution of rivers by sawdust, inspects and constructs fishways, establishes close seasons and keeps in service a sea patrol to safeguard the spawning period, to prevent illegal and out-of-season traps or poaching on closed areas, and to transfer the fry from the hatchery to selected spots. The salmon hatcheries are at Margaree, Windsor and Middleton. Lobsters are protected by close seasons and regulations as to size.

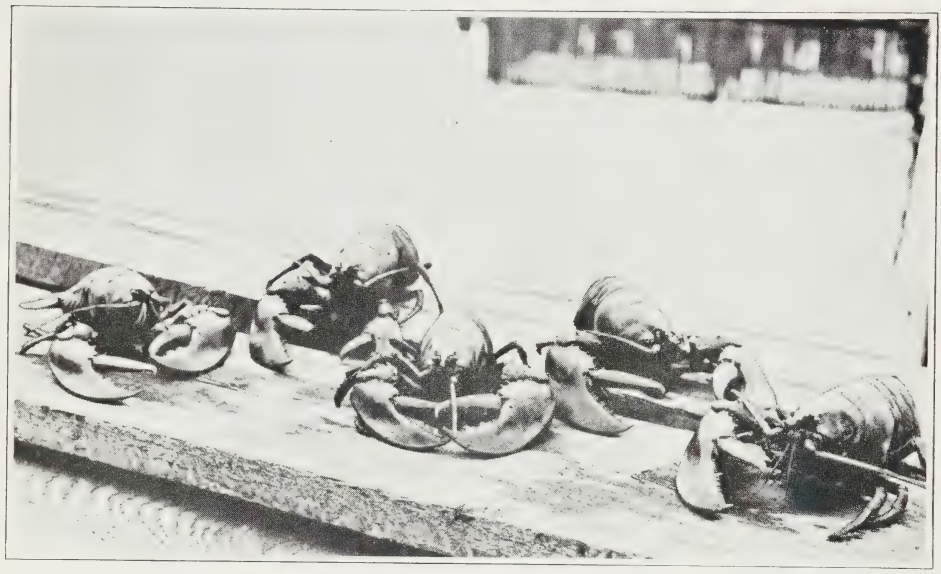
The Government in several ways aids the fishermen to take advantage of the abundant supply of fish it has taken care to secure. By an Act of 1906 an annual bounty of $160,000 is given in aid of sea fisheries and building of fishing vessels. Of this bounty Nova Scotia alone earned more than half ($91,410) in 1921. In the fishing season under the Daily Bait Report scheme telegrams are sent directing fishermen to available supplies of moving bait. A new development is the scout boat that tracks the migration of spring mackerel through coast waters to their spawning ground in the St. Lawrence gulf. More than 4,000,000 pounds of fresh fish yearly reach the consumer from Nova Scotia. For the benefit of fishermen and consumers alike the Dominion Government aids in marketing, in inspection of packing and in standardizing barrels.

The six or seven hundred canneries on the Atlantic coast under the departmental eye are systematically inspected for sanitary condition and the cleanly handling and soundness of the fish. The department also offers expert advice as to the curing of all kinds of fish and the cooperage of proper barrels, barrel-making and the curing and packing of pickled fish carried on under the supervision of Government inspectors, who enforce compliance with standards established by the Fish Inspection Act. Cold storage establishments are maintained at Canso, Mulgrave and Halifax, at Lockeport and Port Hawkesbury. The fish may be packed in containers with crushed ice or dipped in ice water for air freezing or glazing before being stored.

The produce of the Nova Scotia fisheries, "green" and cured together, had a total value in 1922 of $10,207,444. The industry employed 23,875 hands and uses vessels and gear valued at more than eight and a half million dollars.

Of the "cured" fish ninety per cent is exported to the West Indies, South America, Spain and Europe. Canned lobster of the highest quality is exported chiefly to Great Britain and France.

The chief fish marketed are, in order of value in 1922, cod, lobster, mackerel, haddock, halibut, herring, hake, salmon, swordfish, pollock, smelt. Nova Scotia has a large slice of the most productive lobster region anywhere to be found, and in cod fishing is second only to Newfoundland.



The Lobster Fisheries of Nova Scotia yielded 17,140,300 pounds in 1922

An important distinction is to be drawn between "ground fish," such as cod, halibut or haddock, which are permanent off the coast, and "school fish," such as herring, mackerel, tuna or swordfish, which move in schools along the coasts at uncertain times.

Herring

The herring is not only a national food, cheap, nourishing and appetizing when cured as bloater or kipper, but a necessity for bait. The industry is capable of a very large increase in extent and value. Why is it that the Scotch and Norwegian herring catch approaches in value that of Canadian fish of every kind? In 1912 the Scotch herring catch alone was marketed for $10,438,770. It is not the case that the Canadian herring before being caught is at all inferior. One reason, apart from the proximity of the great European markets to Britain and Norway, is that the European fishermen catch the "fat," immature herring (18·6 per cent protein, 3·4 fat) in drift-nets far out at sea, while in Canada the larger adult herring is taken in herring traps and in wide-meshed nets near the coast. In Norway, as in Canada, at one time all the herring fishing was in-shore fishing, until successful experiments proved that the finest herring were to be had farther out at sea, where now hundreds of thousands of barrels are taken by drift-nets every year. In 1904, Mr. J. J. Cowie, a practical expert

from Scotland, was brought out by the Government, and, after years of observation and experiment with a steamer using drift-nets in the open sea, on some occasions secured sixty or seventy barrels in a single night. The catch was cured in expert Scotch style and realized as much as $15 a barrel. In 1914-15, at the suggestion of the Biological Board of Canada, the investigations were continued by Dr. Hiort, Director of Norwegian Fisheries, whose researches proved that the types of European and North Atlantic herring are closely parallel. The problem now remains to discover the whereabouts in season of the vast schools of "fat" herring matties which must exist somewhere off our shores. Research is on the track of these "outside" waters, and, if the "fat" fish once caught is properly handled by the fishermen, properly cured by trained hands, properly graded and packed in good barrels and carefully pickled, the normal price of a barrel should double.

Shad

It must be stated with regret that the shad, the most delicious table fish on the Atlantic coast and once the most abundant, is in danger of disappearing from the waters of the Maritime Provinces. Records of this abundance date from 1782; in 1850 the supply was "inexhaustible"; in 1860, besides the fresh fish consumed, 7,649 barrels were cured; in 1872 three seines alone took 100,000 fish at a catch; in 1897 one seine made the record catch of 47,000, but in 1908 this same seine took only 200 fish in the whole season!

The causes of this rapid collapse of a valuable natural resource in twenty years are easy to trace. In the first place the shad was excluded from the Dominion system of fish culture, and was thus denied the privilege of proper protection. Hence dams and obstructions in rivers, especially dams built above escarpment line with no allowance for passage, forbade access to spawning grounds; the breeding fish were all caught by seines, weirs, and nets stretching completely across the mouths of streams, and that with no interval of a certain number of hours as elsewhere; the rivers were also polluted by sawdust and other matter. Thus the fish that laid the golden eggs was killed. During the same period the salmon increased in number and size, a result directly due to careful protection and propagation in Government hatcheries. The remedies naturally suggested were a close season and regulation of methods of capture, but these unfortunately ran counter to other legitimate fishing interests. Shad hatcheries were therefore recommended, their success having been proved in the Pacific, where this fish, non-existent before, has by means of artificial hatching over supplied the market. It is true that a large supply of shad eggs are less easy to obtain than those of salmon and must be more carefully handled, but expert hands have overcome this difficulty. A movable shad-hatchery is now in use. In 1922 the value of the shad marketed was $9,268.

Swordfish, Tuna, etc.

A great extension of swordfishing has been noted in the last few years. Motor-boats from all parts of the coast are now to be seen gathered off Louisburg ready for the "school."

The tuna or albacore, named also tunny and "horse mackerel," is considered in France an important fish for preserved food. Until the last few years it was deemed a nuisance by Nova Scotia fishermen, but markets in Boston

and New York are now ready buyers. Chipped tuna steak is similar to chipped beef. The Nova Scotia tuna industry centres in St. Margaret's bay.

There are several other fish in the Nova Scotia limits whose value has not been fully realized, such as the plaice and several other flat fish, the "spider crab" and shrimps. Other fish have simply been thrown out—the wolf-fish or "sea cat," with delicious flaky flesh, whiter than halibut; the goose-fish, the skate, whose "wings" are now in great demand, and the "mother of eels." Another castaway, the lump fish, is prized as a dainty dish only around Halifax and the bay of Chaleur, N.B.

The roe of most fish, apart from that of the sturgeon (caviare), has not been utilized in Canada as an excellent and nutritious food. In France it is valuable also as a lure in the sardine fishery and is known as "rogue."

We may note that the sea snail or periwinkle is marketed; that "Chester Scallops" are a Nova Scotia specialty, and that a pink pearl from the many fresh-water pearl mussels to be found in Cape Breton island and elsewhere

Digby Wharves—"The Port of the Peerless Bay"

fetched $250 in New York. Scales that have to be removed from the herring before it is salted and smoked are sold for the manufacture of pearls. Dulse of a good quality is gathered at Digby and is found at other points.

Oysters

Shipments average 1,800 barrels a year. There are oyster beds at Munroe's Bridge, Bras d'Or lake.

Sealing

For several years one or more steamers have been sent out from Halifax to prosecute the seal-fishing industry. As many as 250,000 seals have been seen in past years on the ice at one time in North Atlantic waters.

Utilization of Fish Waste

The value of fish waste and of varieties unfit for food as a by-product of a great fishing industry is hardly realized, and the nitrogenous and phosphoric fertilizer, oil, glue, fishmeal, etc., derivable from these are mostly lost, though there is a small production at Canso, Lockeport, and Halifax.

To encourage the destruction of the dog-fish that roam the sea like packs of wolves and do untold harm to fish and gear, and also to utilize their carcasses and other fish waste, the Government at one time established reduction plants in Nova Scotia, but the plant at Canso is now operated by a private firm for fish meal and oil. Even the eggs of the dog-fish (as large as hens' eggs) have a special value for tanning. The best kind of glue is a product of fish skins, and in England a plant has earned $400 a ton for the fats, and $100 a ton for the poultry meal made from the fish residues. To us the value of desiccated fish powder as a food for pigs and cattle, if not for men as in Japan, is not yet well known.

There are three well defined provincial fishing areas: first, the inner shoals and ridges from five to ten miles seaward, where the shore boats operate, secondly,

Drying Codfish at Digby. In 1922 Nova Scotia marketed 38,678,100 pounds of this product

the middle grounds still further from land, and thirdly the great banks, or extensive undersea plateaux. It is of great advantage to Nova Scotia that all the most prolific fishgrounds of the two first named areas can be easily reached in two hours by a boat with auxiliary power from any southern harbour.

Of the fishermen not much fewer than 20,000 have their own boats and are freeholders, native born in the shore settlements, and by family tradition and experience as daring as they are skillful. The shore boat is a launch of about eight tons propelled by a high power engine evolved from the clinker built skiff or "flat" propelled by oars. The bank schooners are also the best of their class and native built, a typical craft being the famous *Bluenose*, of Lunenburg, winner of the International Fishing Schooner race in 1921.

What is needed now are fast boats specially fitted with chilled storage chambers for carrying fresh fish from points of production to distributing centres.

A scientific connection between such natural conditions as amount of sunshine, salinity and temperature of waters, and the supply of minute plants, shrimps and other fish food has of late years been established in European countries, resulting in an ability to foretell in some measure the abundance or not of herring, hake, tuna, etc., in a coming season.

The Biological Board of Canada, relying on an accumulation of facts by systematic cruising and on the co-operation of fishermen in furnishing information as to place, time and quantities of fish caught, is on its way to provide similar information, which should prove of great economic value to the fishing industry.

MINING AND MINERALS

A general view of the geological features of the province is a key to the distribution of its mining, lumbering and agricultural resources.

The seven counties in the southwest lying between the Bay of Fundy and the Atlantic are occupied by hard quartzite and slate formations (Lower Cambrian), broken by one very large area and several smaller of intrusive granite. The same formation continues all through the southern part of Halifax and Guysboro counties as far as cape Canso. Exceptions to the above are, first, the narrow strip of trap rocks extending along the Bay of Fundy from Brier island to the Minas basin, known as the North mountain, and secondly, the Triassic strata of the Annapolis valley which it shelters. Both of these minor formations extend across the bay of Minas into the northern part of the peninsula.

The mass of the northern part, including Cape Breton island, is occupied by the Carboniferous and Devonian strata, broken up, however, especially in Pictou county, by several other formations, Silurian, pre-Cambrian (in Inverness and Victoria), etc.

Coal, Iron, Limestone

These form the tripod on which the iron and steel industry rests, with all its ramifications into the manufacture of railway materials, mining machinery, guns, ordnance, armour plate, shafts, anchors, ships, bridges, agricultural implements, automobiles, boilers and engines.

The coal leg of this tripod is wholly Nova Scotian and also the limestone, but the iron is brought from Newfoundland.

Coal

Outside of the small deposits of Rhode Island anthracite, Canada's maritime deposits stand alone on the entire length of the Atlantic seaboard of this continent. These deposits in Nova Scotia and New Brunswick are considered to be the southern border of a carboniferous basin occupying the greater part

of the area of the gulf of St. Lawrence. The supply at the present rate of consumption is estimated to last 700 years. The quality of the coal is bituminous and especially suitable for blast-furnace coke, gas and steam. All the richer deposits are above the carboniferous limestone in strata considered to be of the same age as the coal measures of Great Britain.

In Nova Scotia there are four coal-fields with thick seams. The most important of these is the Sydney coal-field on Cape Breton island, which supplied in 1921 about 73 per cent of the Nova Scotia output and has an area of about

British Empire Steel Corporation Works

200 square miles. Its most valuable seams lie between Mira bay and cape Dauphin, extending beneath the sea, but the extent of the submarine coal area has not been determined. The strata are almost free of faults of any size and have gentle dips.

The other fields lie near—the Inverness field, including a series of areas extending for 50 miles along the western shore of Cape Breton island and supplying 3 per cent of the product, and the Pictou field, on the mainland, which supplies 10 per cent. This field has an area of about 25 square miles, and is of intricate geological structure. The presence of numerous faults is balanced by the size of the seams, which vary from 10 to 38 feet. Further west, on Chignecto bay, is the Cumberland coal-field, supplying a further 12 per cent.

In the Final Report of the Fuel Controller, March, 1919, the question of the substitution of coke for anthracite and the profitable utilization of the resulting by-products is fully discussed. The following quotation is suggestive: "There does not seem to be any good reason why Nova Scotia coals should not cover the market for domestic fuel even to the head of lake Ontario. The mines of Nova Scotia are practically all either on or within a few miles of tide-water and good harbours, so that the transportation problem becomes a relatively simple one. The quantity of coal available is enormous, and there is no doubt that the output can be largely increased and put on board steamers at such price as to make the erection of a distillation plant and the invasion of the Quebec and Ontario anthracite market a highly profitable investment."

In 1921, the wage-earning employees on surface and underground averaged 12,265, their days' work 230, and their daily pay $5.06. The pay of the 577 salaried employees averaged $2,174 in the year.

The output in 1922 was 5,558,574 short tons.

By-Products of Coal and Coke

Important use was found for the by-products of the 233,799 tons of coke made in 1921. (In 1920, 382,608 tons.) The gas from the 600 or more coke ovens is used in the manufacture of steel; a certain amount of the crude tar, much of which, however, has to go to waste, is handled by the Dominion Tar and Chemical Company, and there is a large export of sulphate of ammonia. Motor fuel, benzol, toluol and naphtha were produced in proportion.

"The great market now that the war is over is undoubtedly to combine the four products, benzol, toluol, xylol and solvent naptha, as a motor fuel. This fuel has been carefully tested and found to give from 20 to 30 per cent greater mileage than the best gasoline with about 15 per cent greater power, easier starting, no knock with advanced spark and actually less tendency for the formation of carbon in engine cylinders." (Fuel Controller's Report, p. 81.)

Iron

The iron of Nova Scotia is distributed in comparatively small beds and pockety deposits which cannot now compete with the hematite of Newfoundland. The Londonderry mines which were opened in 1849 have been idle since 1908, and those of the Nictaux-Torbrook district, in Annapolis county, though yielding 350,000 tons between 1891 and 1913, are no longer worked. Another deposit is in the Pictou iron range.

The source of supply is in the Wabana mines on great Bell island in Conception bay, Newfoundland. The ore is hematite of high grade. The distance of shipment is 400 miles.

Basic slag as a by-product of the blast furnaces is used or exported as a phosphatic fertilizer.

Limestone

The Nova Scotia quarries of the limestone used for flux are all on Cape Breton island and comprise the Marble Mountain quarry in Inverness county, worked by the Dominion Iron and Steel Company, the George River quarry, and the Point Edward quarry of the Nova Scotia Steel Company. The first-named produces about two-thirds of the total for Nova Scotia.

With abundant coal and limestone on the spot, with iron-ore of very high quality in unlimited amount obtainable close at hand by cheap water shipment, and with harbours such as Sydney, Louisburg and New Glasgow for export up the St. Lawrence into the heart of the Dominion or to any other part of the world, Cape Breton island and Pictou county must rank as a most important centre of the iron and steel industry.

Oil Shales

The strata in Nova Scotia are said not to be favourable for a flow of oil or for natural gas, but in Pictou county there is a considerable area of oil shales which should prove of importance not only for the high percentage of oil in certain varieties of shale, but from its position in the heart of a manufacturing district and its accessibility by sea.

"The oil shale of Pictou county occurs in the productive coal measures, which underlie an area of approximately 20 square miles in the vicinity of New Glasgow. . . . . No systematic effort has been made to determine the number, thickness or extent of the various beds of oil shale. . . . The structure is so simple that the extent and average yield of the various beds can readily be proved by careful geological mapping, followed by core-drilling and analysis. The deposit is located in the midst of the coal and steel industry and the situation is ideal for developing a new industry." (Geol. Survey Mem. 129, 1922.)

To establish a shale oil industry a large outlay of capital is required. The retorts used in the manufacture of the products are now on the free list, and the other more costly machinery is subject to a rebate.

There is also an area of shale in Antigonish county. Cape Breton island has not been prospected for oil-shale, although beds have been reported near East bay and the geological horizons are such that important deposits might be found.

Peat

The Dominion Government has for some time been experimenting with a view to the economic use of peat. The Department of Mines has examined and reported on eight of the Nova Scotia peat bogs, three in Yarmouth county, three in Shelburne, and one each in King's and Lunenburg, a total area of 8,671 acres. Of these the Cariboo bog in King's would supply not only fuel but a fertilizer for the fruit district in which it lies. The Tusket, Makoke or Heath bogs would produce a cheap fuel for the district of Yarmouth. In Northern Europe the use of peat in various forms is general. Experiments have shown that the calorific value of peat powder is seven-tenths that of coal. In Denmark when the war entirely stopped importation of coal, the railroads, many dairies, brick and glass factories, etc., were dependent for fuel on the product of the ninety-seven Danish peat plants.

Gold

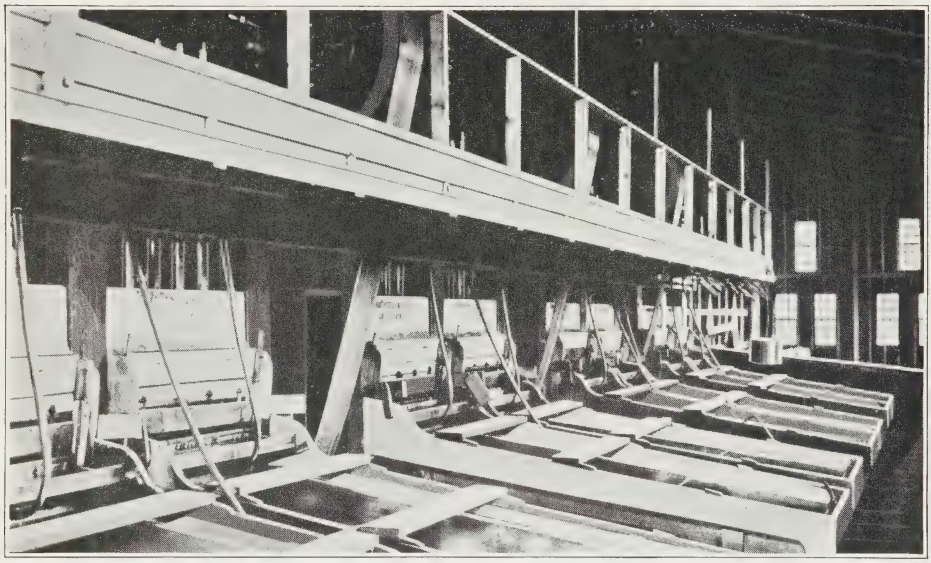
The gold-bearing rocks of Nova Scotia lie in the wide strip of Lower Cambrian quartzite and slate formation which extends from cape Canso to the Bay of Fundy south of latitude 45° and which is broken by large intrusions of granite areas, mainly in the southwest of the province.

The district is about 275 miles in length with a varying breadth of from 10 to 75 miles. Its area is figured at 10,250 square miles of which about one-

third is occupied by the granite. The gold occurs almost entirely in quartz veins interbedded generally in the sedimentary strata. The more easterly part of the field proves more productive than the westerly for here the greater occurrence of geological fractures and slips have formed more channels for solutions and deposition. The formation of the gold-bearing area has been compared to that of the famous "saddle-reef" of Bendigo, Australia, where veins have proved auriferous to a depth of 5,000 feet.

The recovery of gold in small quantities has been constant since the discovery in 1860. In the early days of the Royal Mint at Ottawa the gold of Nova Scotia and what came to Halifax in H.M. cruisers made up nearly the entire supply.

In 1862, $142,000 worth of gold was taken out, and the value per ton of ore crushed, down to and including 1917, has been $8.80 with an average yearly yield of 19,130 ounces. The highest record was in 1898 when 31,104 ounces



Stamp Mills, Isaac's Harbour. Nova Scotia has 10,250 square miles of Gold-bearing rock

were extracted. The gold-bearing series of rocks has been divided into the Goldenville or quartzite and the Halifax or slate formations. The Oldham gold-field, 25 miles north of Halifax near the summit of the watershed, has been worked continuously since its discovery in 1861. In the Tangier River district and to the northwest of this in the Caribou district there are productive mines.

The Goldenville district, in Guysboro county, about 12 miles east of the Halifax county line, had for some years the largest yield in the province, but the Montague district of Halifax county was the chief producer in 1921. In Yarmouth county a mine at Kemptville netted its owner $306 from one ton of ore and $373 from two tons in January, 1917.

In estimating the value of the gold production of Nova Scotia, which amounted to only 379 ounces in 1921, we may remember that Ontario, which in 1922 produced 999,848 ounces, produced only 2,011 ounces in the year pre-

ceding the Porcupine discoveries. Considering the long continuance of finds, small though they have been, and generally the extent of the field and its analogy to fields that have been markedly successful, Nova Scotia may be considered one of the four or five gold-bearing areas of Canada. Production in 1922 rose to 1,041 ounces.

The scarcity and cost of labour, the fuel difficulty, uneconomical methods of extraction and the high cost of operating the narrow veins suggest the more extensive use of the diamond drill, the flotation process, and the application of hydro-electric power as possible means of reviving the industry. Plans for water power development in the Sheet harbour area are now being worked out by the Nova Scotia Water Power Commission.

Gypsum

The gypsum deposits of Nova Scotia are the largest of any at present known in Canada. Outside of coal, gypsum is probably the most important mineral, as regards tonnage, being exploited in the province, and even yet only a small proportion of the available deposits is being operated.

The mineral occurs in the Lower Carboniferous formation and is closely associated with beds of anhydrite and limestone. Numerous outcrops are encountered throughout the whole of the northern half of the province, extending from the district in the neighbourhood of Windsor, Hants county, eastward to the district around Antigonish, Antigonish county, and also through the northern half of the island of Cape Breton.

Many of these deposits are exposed in cliffs which vary from 50 to 200 feet in height and are easily accessible to rail or water transportation. Large shipments were made from the Windsor district as far back as 1829.

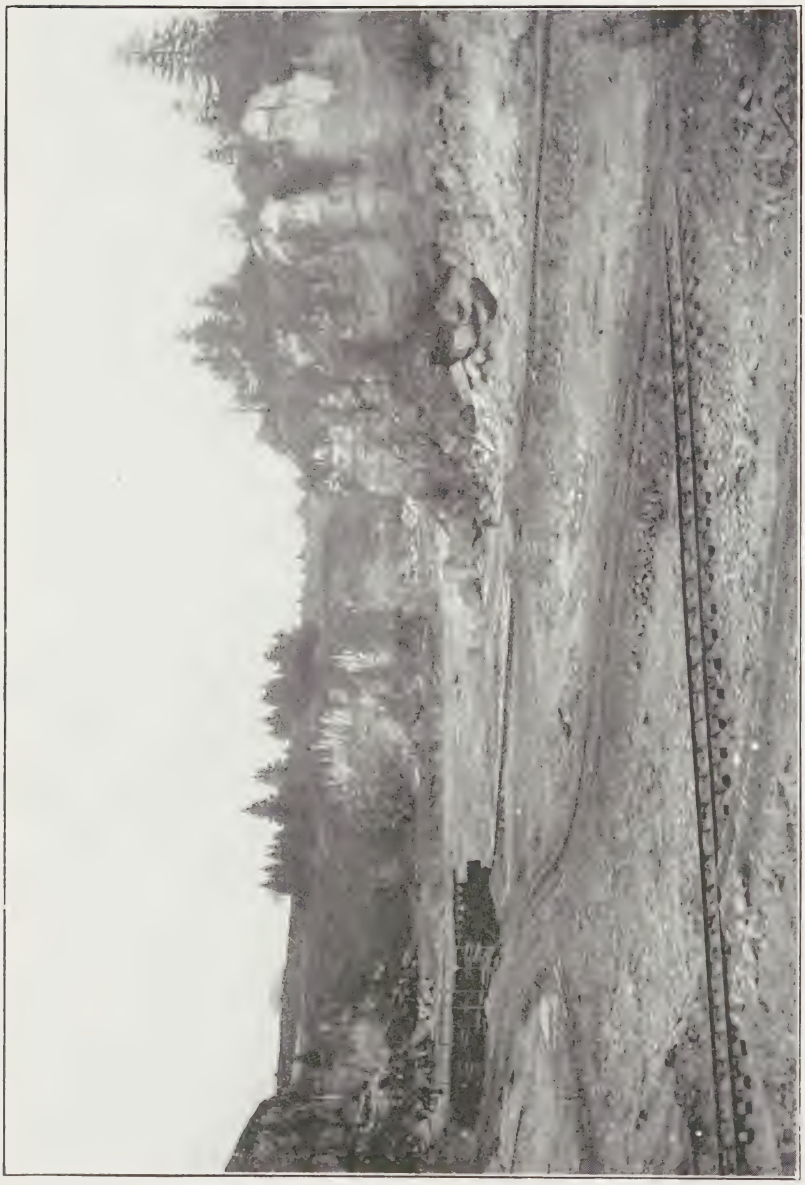
The gypsum on the whole is massive and is a good quality of white rock. Selenite is occasionally found associated with the massive gypsum, sometimes in veins up to a foot in thickness, and sometimes as small crystals evenly disseminated through the massive material.

In 1922 there were eight quarries operating. The tonnage mined for the year was 256,875, about 85 per cent of which was shipped in the crude state to the United States for calcining. The Dominions Royal Commission Report (February, 1917) remarks that "the people of Canada had to buy the gypsum back in the form of plaster at a greatly enhanced price."

A report entitled "Gypsum in Canada, its occurrence, exploitation and technology," has been published by the Mines Branch, Department of Mines, Ottawa, in which the deposits of this mineral in Nova Scotia are described at length. A copy of this report can be obtained by applying to the Director, Mines Branch, Department of Mines, Ottawa.

Salt

The discovery in 1916 of a bed of rock salt is proving of great importance to the Maritime Provinces, where the fishing industry alone consumes 50,000 tons a year. The deposit was found under a farm near Malagash, Cumberland county; in October, 1918, the prospect shaft struck rock salt at 85 feet, and in 1922 at a depth of 200 feet a six-foot face of white salt, 99·1 per cent pure, was opened up. This supply of rock salt is of special interest, for research has proved that if this or other mined salt is used in place of the tropical or



Gypsum

solar salt imported for the curing of fish, red discoloration of cod is thereby avoided. The salt is also used for preserving pit timber by a process of salt pickling. The production for 1922 was 5,250 tons.

The amount of deposit is estimated at 25,000,000 available tons. Some of the samples taken from this deposit have shewn high percentages of potassium salts.

So far the only salt-producing district of large extent in Canada is in western Ontario, the salt needed in the Maritime Provinces being imported from Turks island and the Mediterranean.

Brine springs have been located in Nova Scotia at various points between Baddeck and Springhill, but no rock deposit of economic value was discovered until 1916.

OTHER MINERAL DEVELOPMENTS AND OCCURRENCES

Wartime needs led to diligent prospecting and extraction of the less known minerals, but recently the production of these has been confined to salt, tripolite, manganese and barytes.

Antimony

In the West Gore district of Hants county, 533 tons of antimony concentrate was mined in 1918, but there has been no shipment from Canadian sources since the heavy decline in price.

Arsenic

Gold-carrying mispickel has been reported from the Cheticamp district in Cape Breton island.

Barytes

Barytes is worked at East Lake, Ainslie, Inverness county, and at Five Islands, Colchester county, In 1922 Nova Scotia with 270 tons (ground) was the sole producer among the provinces.

Feldspar

A deposit of orthoclase feldspar has been worked experimentally at Beachville, St. Margaret's Bay road, Halifax county.

Lead

Argentiferous galena has been worked at Musquodoboit in Halifax county, and also in Cape Breton county.

Magnesite

A deposit near Orangedale on the Great Bras D'Or lake, Inverness county, has been mined for experimental purposes. Magnesite is essential as a lining for steel furnaces.

Manganese

In the New Ross district, Lunenburg county, at the time of great demand, a company took out high grade ore averaging as much as 92 per cent manganese

dioxide. The waste dumps were also sorted over and the sample ton produced ferro-manganese with 30 per cent manganese and 30 per cent iron. At Walton in the Minas basin, Hants county, a deposit of manganese in sandstone was prospected, the 15 per cent manganese from which could be concentrated to 45 per cent. The price at one time rose to $250 a ton at Pittsburg. In 1910 Nova Scotia imported 1,110 tons. In 1921, 450 tons were mined, compared with 100 tons in 1920. The New Ross mine is now the sole producer, but the ore occurs in Cape Breton and Colchester counties. Manganese is used for steel alloys and also in making dry batteries and glass.

Molybdenum

From New Ross there were shipments in the time of high prices, and Gabarus bay, Cape Breton island, was also a producer. Molybdenum in a steel alloy produces the strength and toughness necessary in airplane motors, automobile and tractor construction and in shafting and springs.

Ochre

Deposits have been worked in King's county, Londonderry area, and at Ellershouse, Hants county. Ochre is used for purifying coal gas and as a pigment.

Tungsten Ores

The Moose River district in Halifax county, west of the Tangier river, was noticed in the Report of the Munitions Commission as one of the most productive Canadian sources of tungsten minerals, but little has been shipped from the Scheelite mines in the last few years.

Tungsten ore (scheelite) was also shipped from Waverley, a point on the C.N.R. north of Halifax. This was hand-picked and sold to the Munition Resources Commission at Ottawa. Tungsten as a steel hardener is more limited in its source than molybdenum, but is specially needed for high speed tools and electric bulb filaments.

Tin

"The occurrence of tin ore (in Canada) has been reported from several localities, the most important, perhaps, being the discovery of cassiterite near New Ross, N.S." (Mineral Production of Canada, 1916.) *See* Reports of Geological Survey for 1907 (p. 77), 1908 (p. 154), 1910 (p. 253), 1912 (p. 389).

Tripolite or Diatomaceous Earth, or Kieselguhr

Of this Nova Scotia at the present time has the only deposit in working in Canada. A company shipped 219 tons, valued at $11,268, from lake Silica in Colchester county in 1922. This deposit is nearly exhausted. It has also been shipped from St. Ann, Victoria county, and the Bass Rock lake (Cumberland county). Other deposits are found near Liverpool (Queens), near Dartmouth, at Point lake (Halifax), and in Pictou county. Tripolite occurs in shallow layers at the bottom of small lakes and is used as a polishing material and for many other economic purposes.

Zinc

At Stirling in Richmond county (Cape Breton island) the analysis of an extensive body of ore showed from 4 to 30 per cent zinc, 7·5 per cent lead, and 3·5 per cent copper.

Radium

Radio-active rock is reported near Stewart Station, Halifax County.

BUILDING STONES

It was not for lack of stone in Nova Scotia that Government House, Halifax, was built of blocks sent from France to fortify Louisburg. Although at the present time the quarries of Nova Scotia are with few exceptions idle, it is important in view of the future demand for building material to state where it can be best obtained.

Building stone is, in general terms, either limestone, sandstone or granite.

Limestone

The limestone of Nova Scotia has been little used for building purposes, though the crystalline limestone or marble obtainable from Marble mountain has attracted the attention of experts. Here there are at least six varieties running from fine white statuary marble to dark, striped and variegated. The Grand Quarry may also be mentioned as the centre of a field of 200 or 300 acres about 450 feet above the lake and 300 yards from deep water. From this quarry immense building blocks could be removed, but so far the rock has been used almost entirely for lime and flux. As long ago as 1879 the Geological Survey suggested the working of this field as "a new industry and source of wealth in Cape Breton island," but development lingers.

Sandstone

The building sandstones of Nova Scotia have been worked in the past more than they are at the present time. The red sandstone of Amherst has been used in most of the public buildings of the town and also in Truro, and shipped as far west as Hamilton and Toronto.

The greenish-grey sandstone of the Wallace district on the shore of Northumberland basin has been quarried for 100 years and used for many buildings in Quebec, Ontario and in the Maritime Provinces. It has also been shipped to New York, Boston and Providence. The Victoria Museum at Ottawa is partly built of this material and trimmed with the blue variety which lends itself well to carved work. Shipping facilities are good both by water and rail. A red sandstone has been shipped from the River John area to Toronto and elsewhere and the olive-green variety known as "Pictou" stone, the amount of which is practically unlimited, has been much used for public buildings, churches, etc., in the Maritime Provinces. To this stone a medal was awarded at the Colonial and Indian Exhibition in 1886. At West River, near Scotsburn, in Pictou county, there is a grey sandstone of fine grain and excellent quality, and in the Whycocomagh area at the head of Saint Patrick's channel there is a body of red sandstone four miles from tide-water.

Granite

There are a few areas in the mass of granite intrusives between Cape Canso and Yarmouth where granite has been found suitable for building and decorative purposes. The Nictaux fine grey stone is in demand for monumental work. The granite of the New Germany district in Lunenburg county has been made use of for heavy construction, such as bridges. Shelburne county has an excellent fine grained granite which can be seen to advantage in the Customs building and Post Office at Shelburne. The Halifax area has fine quarries lying at the edge of the granite mass extending west from Halifax harbour. This is a very coarse stone with black spots, in unlimited amount, and can be seen in St. Mary's cathedral

in Halifax. The Bank of Commerce building at Halifax is built of granite from the disused quarry at Terence bay. There is also a massive field in Guysboro county, at Whitehead, forming a cliff of 12 feet above high water such that vessels could be loaded directly from the shore. The material is a rather coarse grey to white granite and is considered the most promising in the province for the production of heavy stone.

Decorative Stone

Volcanic rocks of porphyritic or brecciated structure occur in several areas, the best known of which is Scatari island, off the extreme edge of Cape Breton. The coast is strewn with pebbles displaying a profusion of beautiful colour when wet. The cost of production would be considerable in the extraction of good sized blocks, but there is an enormous amount of stone of unusual beauty, very hard and taking a fine polish. The green and red-brown slabs to be found among others in many museums are particularly attractive.

Tube Mill Pebbles

Many thousand tons of pebbles of volcanic origin "better than the commercial flint pebbles with which they were compared" could be sorted and shipped from Lever beach and other beaches in the Gabarus bay locality. (*See* Geol. Sur. Rept. 1917, 23 F-27 F.)

Grindstones

Pictou county shipped 300 tons of grindstones in 1919, these being almost entirely tool stones, the larger stones required for the pulp industry being a product of New Brunswick. It is possible that pulp stones of the necessary size (standard 54 inches diameter and 27 inch face), texture, grinding quality and strength could be produced near Amherst and other places. The life of a pulpstone is about one year only, so that there is a continuous market. The stone when quarried is comparatively soft, but hardens by exposure in storage.

Lime (quicklime and hydrated)

Only one firm is on record as manufacturing lime in Nova Scotia. This firm produced 748,316 bushels in 1918 at a value of $149,663. Ground limestone for use as a fertilizer is a product of several small quarries.

Sand and Silica

Moulding sands for foundry work are available from deposits near Elmsdale, Belmont Station and Dartmouth. It has been suggested (Geological Survey, vol. IX) that the stretches of white, windblown, silicious sand, many feet deep, lying in the neighbourhood of Port Mouton (Queens) and Barrington bay (Shelburne) might prove of economic importance.

Silica rock is found in large amount near Orangedale and Whycocomagh.

Road Material

A large supply of the best possible road material, easy to move and ship by water, can be got from the trap rock of Digby neck.

Amethysts, etc.

Mineralogists will be interested in the amethysts and other minerals found in the Bay of Fundy region. At Partridge island, Cumberland county, crystals,

an inch in breadth, have been found covering foot-square surfaces. As early as the years 1605-10 crystals were sent from Partridge island to Henry IV of France and one from Blomidon was among the French crown jewels. A bushel of amethysts was found in the digging of a well at Kentville and they occur in several localities about the basin of Minas. Bloodstone, chalcedony (white, red and blue), carnelian, agate (onyx), jasper and staurolite are also to be found. The exposures at Joggins of formations rich in fossils and mineralogical specimens are celebrated among geologists.

Clays and Shales

Nova Scotia is more liberally supplied with raw materials suitable for the use of the clayworker than any other province except Saskatchewan. This is in large part owing to the presence of Carboniferous coal measures, as this series of rocks in addition to the coal beds contains numerous beds of clays or shales. Very valuable clay beds of Cretaceous age occur at Shubenacadie in Hants county, and in the Musquodoboit valley in Halifax county. These clays resemble the stoneware and fireclays of an extensive clayworking industry.

The late marine or Pleistocene clays are found at many localities, notably in the Annapolis valley and along the line of the Canadian National railways between Enfield and Shubenacadie. These marine clays are generally reddish in colour, occur on the surface, and are soft and stoneless. They furnish the raw material for a good cheap red building brick, and for field drain tile or flowerpots.

The shale deposits are seen to best advantage in the Sydney, Inverness, and Pictou coal-fields in natural exposures, either in cliffs along the Atlantic coast or along the sides of stream valleys. The shales are constantly encountered in coal-mining operations, expecially when cross-cutting the measures from one coal seam to another.

A very complete description of these shale beds accompanied by the results of physical tests on samples collected from them is given in the report on Clay and Shale Deposits of Nova Scotia by Messrs. Ries and Keele, and published by the Department of Mines. (*See* also Mines Branch Memo. No. 5 and "Pottery Clays in Canada", J. Keele, 1922.)

From this report we gather the information that all of the shale beds in the Carboniferous measures are plastic when ground and worked up with the required amount of water and consequently can be formed into ware of any desired shape by almost any type of clayworking machinery.

The list of ware that can be made from these shales includes common building brick, face brick, hollow building brick, sewer pipe, electric conduits, floor tile, roofing tile, paving brick, firebrick, stove linings, garden urns, chimney flues, etc.

It is stated that while none of the beds in the Carboniferous measures are highly refractory except in one instance at Inverness, there are several beds of semi-refractory shales in the Pictou coal field which are extremely useful in the steel industry or for the manufacture of sewer pipe or other vitrified wares.

The real fireclays in Nova Scotia are seldom found in the coal measures but occur as soft beds of Cretaceous age at the localities given above. These clays are also used in the manufacture of stoneware goods.

One of the best refractory materials in the province is not a clay at all, but a hard rock known as felsite, a large deposit of which occurs at Coxheath not far from the city of Sydney. This material when crushed to the proper size and bonded with plastic fireclay makes a very superior grade of refractory brick.

The southwestern part of the province between Halifax and Yarmouth appears to be lacking in clays either of the hard or soft variety. At a few points in this district there is a material of peculiar interest known as infusorial earth. This is a very fine grained siliceous deposit of organic origin and has many uses in the industries. Its chief use in the clayworking industry is in the manufacture of insulating brick, which is used to great advantage in conserving heat in furnaces. (*See* Tripolite, p. 34.)

In addition to the clay resources there are still other materials which are included under the general head of ceramic, one of the most important of these being silica rock. There are extensive beds of quartzite in Cape Breton which contain over 95 per cent of silica and are found to be suitable for the manufacture of silica brick.

Silica brick is becoming a very important item in metallurgical and by-product coke-oven practice and a large quantity of this expensive material is imported into Canada every year.

CLAYWORKING INDUSTRY*

The vast and varied resources of clays and shales in the province of Nova Scotia have been little developed up to the present. Timber has hitherto been cheap and plentiful, and in some localities has been used for structural purposes entirely. Some of the most disastrous fires on record in Canada have occurred in the towns and cities of the Maritime Provinces, owing to the rapidity with which fires spread over an area of closely-built wooden houses. Equally disastrous fires are bound to happen in the future unless building with brick becomes more general. The Maritime Provinces are well provided with clay products for structural purposes, as they possess a great variety of the raw material as well as the coal fuel for burning the ware, and now that wood is becoming expensive it is more difficult for it to compete with brick on the score of economy.

As far as structural materials are concerned the clayworking industry of Nova Scotia is confined at present to the manufacture of common red brick made from the surface clays. These bricks are used for face brick as well as for backing and filling, but if a face brick of special colour, finish, or texture is desired it is necessary to import it.

Face brick which cannot be excelled by any imported article may be made from several of the shale beds in the Pictou coal field and at other localities.

Hollow building blocks, or fireproofing, as these wares are sometimes called, are not made in the Maritime Provinces, but their use is becoming very general in all other parts of Canada. They are cheaper to build with than brick and on account of the hollow spaces are said to make better walls in dwellings for withstanding the effects of extreme changes of temperature on living conditions. When housing problems are being considered all possibilities regarding the best

*This memorandum was prepared by the late Mr Joseph Keele of the Mines Branch.

material to use must be taken into account and when a suitable material is not being produced steps should be taken to encourage its manufacture.

Sewer pipe is made from certain of the shale beds in the vicinity of New Glasgow. This is an excellent glazed pipe and the facilities for output are ample to supply all the demand in the Maritime Provinces for this class of ware.

A small quantity of field drain tile is made at the brick plant at Avonport, in Kings county. Underdrainage of farm lands is bound to increase when its benefits are realized, and a much greater demand for tile is sure to come in the future. Most of the surface clays mentioned in the report of the Department of Mines are suitable for the manufacture of agricultural tile.

Firebrick for lining the ladles used in the steel works are manufactured from the semi-refractory shales which are mined with the coal at Westville. These bricks are hard and dense in structure and give better satisfaction for ladle linings than a more refractory brick. There is a good deal of unnecessary use

Samples of Pottery and Building Material that can be produced from Nova Scotia Clay

made of firebrick in many cases where a less refractory brick would do, so that the shales at Westville could be made into brick for many purposes where high refractoriness was not the only thing to be considered.

It is possible that some of these shales could be used for the manufacture of architectural terra-cotta, a material that is steadily increasing in use as a facing

for business buildings in cities. This class of clay ware is not made at present in Canada.

Red and buff floor tiles or roof tiles can also be made from these shale beds. Large quantities of these goods are imported from Great Britain and the United States.

So far as can be ascertained, the manufacture of pottery has never been attempted in Nova Scotia, except by the small plant at Enfield, which makes the ordinary red flowerpots from the surface clay in its neighbourhood.

There are excellent stoneware clays at Shubenacadie and Middle Musquodoboit. At St. John, N.B., the clay from the latter point is used for making tea pots, bowls, jars, crocks, etc., and is found very suitable for the purpose. Until a few years ago the firm obtained its clay from New Jersey.

The tourist trade of Nova Scotia offers a good opportunity for the manufacture of clay wares for souvenir purposes. At present we have nothing to offer visitors in the way of ornamental work made of Canadian material by Canadian workmen or workwomen, except possibly some birch bark, deer skin or sweet grass articles. Many visitors would gladly purchase small pieces of clay ware if they were of local manufacture, made from local materials, and had some distinctive qualities besides.

Clayworking with a view to developing this branch of its technique might readily be taken up by the technical schools, but so far they appear to have neglected this very important branch of manual training.

Several experiments have been made at the clay testing laboratories of the Mines Branch at Ottawa on the suitability of some of the clays of Nova Scotia for modelling and pottery-making. It was found that some of the stoneless brick clays of the Annapolis valley will make good red ware which can be enamelled with the ordinary majolica glazes.

The clays of Shubenacadie and Musquodoboit are excellent modelling clays which could be used for instruction work in technical schools and for making the finest kind of glazed art pottery.

NOTE.—The products in the illustration are all made of Canadian clays, and though not entirely Nova Scotian, could all be duplicated from Nova Scotian material.

FORESTRY

In 1909 the late Dr. B. E. Fernow, of the University of Toronto, was engaged by the government of Nova Scotia to make a reconnaissance survey of the forests of the province. His report, entitled "Forest Conditions in Nova Scotia," was published by the Conservation Commission in 1912.

The following table, contained in the above report, will give a general idea of the ratio that the forest area bears to non-forest in this province.

The total land area of the province is 13,483,520 acres. The difference between this and the 12,070,219 classified is accounted for by water areas other than the Bras d'Or lakes and by small areas which for various reasons were not within the scope of the reconnaissance survey.

Fifty-four per cent of the land area carried forest growth. Including the brulés and barrens, which are of potential value for forest production, more than 60 per cent of the total land area of the province can be considered as primarily forest land.

CLASSIFICATION OF LANDS AND FORESTS (1909–10)

—	Acres	Per Cent
Mainland—		
Farm (cleared lands)	1,832,736	19·0
Meadow (natural)	21,680	0·2
Open bog (savanna)	37,793	0·4
Forest (*a*) conifers	1,036,175	10·8
(*b*) hardwood	330,856	3·4
(*c*) mixed	3,685,807	38·3
Burnt and barren lands	551,098	5·8
Unclassified	2,123,778	22·1
	9,619,923	100·0
Cape Breton Island—		
Cleared lands, farms, mine dumps, etc	437,568	17·9
Forest (*a*) conifers	859,704	35·1
(*b*) hardwood	195,968	8·0
(*c*) mixed	480,784	19·6
Burnt and green barrens	455,456	18·6
Unclassified	20,816	0·8
	2,450,296	100·0

Forest Resources

The total forest resources of Nova Scotia, including all classes of merchantable material, are now estimated to amount to the equivalent of thirty billion feet board measure, of which about 50 per cent is coniferous or softwood timber.

Saw Material

Of the wood suitable for the manufacture of lumber, there are estimated to be 6,500 million feet softwood, and 3,500 million feet hardwood. Spruce provides about one-half the softwood, with hemlock, balsam and white pine in order of predominance making up most of the balance. Of the hardwoods, beech, maple and yellow birch are the most abundant and valuable.

Pulpwood

Of the species used in the manufacture of pulp there are estimated to be twenty-five million cords of spruce and balsam and six million cords of poplar, hemlock and jack pine including the saw material of these species.

Timber conditions in Nova Scotia are related to the geological formation. The granite area, while seldom affording good farming land and showing a proportion of swamp and of natural or burned over barren, has good forest soils, the thinner soil on the ridges for fir, that of the steeper slopes for mixed growth, that on the gentler slopes and on the bases for spruce and hemlock. The quartzite areas, composed of rock less easily disintegrated than that of the intruded granite show more frequent barrens. It is the slate formations that occur in these areas and the better of the glacial deposits in the valleys that provide good farm lands and show a finer forest growth. The timber of the northern slope, which drains into the basin of Minas and the Northumberland strait,

though of the same character as the timber of the Atlantic slope is more luxuriant owing to the diversity of limestone, slate, sandstone and conglomerate.

Laws for the prevention of forest fires have been enacted since 1761 and in 1921 the "Forests and Game Act," consolidating the previous laws for the prevention of forest fires and the protection of game, came into operation. Under this Act a Commissioner of Forests and Game was appointed.

Production

Lumber.—In 1921 Nova Scotia was fifth among the provinces in lumber production, with a cut of 115,246,000 feet, valued at $3,054,995, compared with a cut of 270,166,000 in 1920, valued at $9,275,934.

In 1919, which was a year of depression in forest industries throughout eastern Canada, the number of saw mills was 57, of which 54 produced between

Loading Lumber at Pictou, N.S. The Value of Nova Scotia's Forest Products in 1922 was Eleven Million Dollars

one million and five million feet, 2 between five and ten million and one between ten and fifteen million.

Pulp.—In 1920 the pulpwood cut was 51,806 cords at an average value of $16.38 a cord, or $848,525 in all. Ground wood-pulp was manufactured to the amount of 23,384 tons, valued at $1,067,455, but neither chemical pulp nor paper were made in the province. Pulp in Nova Scotia is made almost entirely from spruce and balsam, but a good deal of poplar pulpwood is exported to the United States. The pulp mills producing in 1921 were:—

Becker & Co. (formerly Clyde Pulp Co.), Clyde river.
Clarke Bros. Ltd., Bear river.
Gaspereau Light, Heat & Power Co., White Rock, Kings Co.
La Have Pulp Co. Ltd., Morgan Falls, New Germany.
Macleod Pulp Co., Milton, Queens Co.
Nova Scotia Wood Pulp and Paper Co., Mill Village, Queens Co.
Oxford Paper Co. (formerly Breton Pulp and Paper Co.), Murray, C.B.
Premier Paper & Power Co., Hartville, Hants Co.
Sissiboo Pulp & Paper Co. (upper mill), Weymouth Falls.
Sissiboo Pulp & Paper Co. (lower mill), Weymouth Falls.

Woodworking Industries

In addition to the saw-mills and pulp mills there are in Nova Scotia 114 woodworking industries dependent on the forests for their material. Several firms of course produce a variety of articles.

Product	*Number of firms*
Agricultural implements	1
Blocks and pulleys	5
Boats	31
Boxes and shooks	9
Cars	5
Caskets, coffins and shells	2
Cooperage	14
Crating	8
Foundry boxes	5
Furniture	4
Handles and brush backs	2
Hardwood flooring	5
Machinery parts	2
Patterns	7
Sash and doors	24
Vehicles	37
Miscellaneous, including artificial limbs, baskets and crates, excelsior, moulding, musical instruments, pumps, trunks, clothes-pins, dowels, barrel bungs, wood shanks, pegwood, fox pens, snowploughs, etc	12

(For full details as to commodities manufactured from each kind of wood, and detailed descriptions of the special woodworking industries in Nova Scotia *see* "Wood-using industries of the Maritime Provinces," Forestry Branch Bulletin No. 44, by R. G. Lewis and G. H. Boyce.)

Distillation of Hardwoods

Maple, birch and beech are the hardwoods mostly used for extraction of methyl hydrate (wood alcohol), acetic acid and acetone and for the accompanying charcoal. Conditions needful for a crude distillation industry, namely, abundant hardwood and coal, water and lime, and also an accessible market for the bulky product charcoal, are to be found in Nova Scotia. The hardwood distillation plants of Canada are at present confined to Quebec and Ontario, all but two of the twelve being connected with a single organization.

Hardwood is very largely used for fuel especially in the rural districts.

The trees that make up the bulk of the forests in Nova Scotia are:—

Red Spruce (*Picea rubra*), confined in Canada to Nova Scotia, New Brunswick and eastern Quebec. This is the principal lumber tree of the province,

and is of larger growth in moist and well drained situations. It is stronger and more durable than white spruce and its fine grain, texture and reddish tinge give it special value for interior finish. It is also a valuable pulp species.

White Spruce (*Picea canadensis*) (called "cat spruce" in Nova Scotia) is less abundant than the red, but found in the coastal districts, especially in Yarmouth and Digby counties and on the Canso side of Guysboro county. In Canada as a whole it is abundant and very widely distributed. Owing to

Great quantities of Nova Scotia Timber are used in her Coal Mines

its long, tough, colourless fibre and comparative freedom from resin, it is the most valuable pulpwood species in Canada. The wood is also extensively used for lumber and to some extent for cooperage, mine props, ties, masts and spars.

Black Spruce (*Picea Mariana*). In eastern Canada this tree is confined mostly to swamplands. Owing to its comparatively small size it is of less value for lumber than the other spruces, but is largely used for pulp, mining timbers, ties and cooperage.

White Pine (*Pinus strobus*), largely second growth in Nova Scotia, found mainly in Queens and Shelburne counties. This is the highest priced of the pines. The wood is soft, white and easily worked and where available, it can be used in every part of building construction and in nearly every wood-using industry.

Red Pine (*Pinus resinosa*) is found in Lunenburg and Queens counties and generally on sandy plains. It is used for lumber, masts, spars, deck plank and especially for car construction, paving blocks and water tanks.

Jack Pine (*Pinus Banksiana*) not abundant, but occurring on poor sandy soils. especially in Colchester county.

Balsam Fir *(Abies balsamea)*, misnamed "white spruce" in Cape Breton, is found in all parts but especially on Cape Breton Island. It is valuable for pulpwood and for cheaper grades of lumber, but short lived and subject to early rot.

Hemlock *(Tsuga canadensis)* is found chiefly in Annapolis county and the interior of Digby county, forming 60 to 70 per cent of the uncut stands.

Stripping the Bark of the Hemlock for Tanning Purposes

It is especially suitable for under water and rough construction and for other purposes in which its coarse and splintery qualities can be disregarded. The bark is a source of tannin.

Cedar *(Thuja occidentalis)* is native but not abundant. It is used chiefly for fence posts, telephone poles and shingles.

Larch *(Larix laricina)* called also tamarack, hackmatack and locally "juniper" is found in swamps with black spruce. The wood was, when plentiful, greatly valued for shipknees and trenails, and is well adapted for pumplogs, tanks, and vehicles. The old growth has been destroyed by the sawfly, but young growth is not uncommon.

Beech *(Fagus grandifolia)*, the most abundant of the hardwoods, more common in the west of Nova Scotia than the east.

Maples. The *Acer saccharum* or sugar maple is the wider spread of the two principal maples found in Nova Scotia. The red maple *(acer rubrum)* also called "soft maple" is less valuable even for lumber. The maples are the most abundant of the hardwoods in the Maritime provinces next to beech.

Yellow Birch *(Betula lutea)* is the most valuable hardwood in the province and grows more abundantly in the eastern counties than either beech or maple.

The last three hardwoods are the staple woods for flooring, car construction and furniture.

Paper Birch *(Betula alba)*, or white birch, is common on burned-over areas. Besides its traditional use for the birch bark canoe, it is in general use for small woodenware such as spools, clothes pins, etc.

Boiling Maple Sap. Large, well-equipped modern plants now increase the supply of Canada's Maple Sugar and Syrup

Red Oak *(Quercus rubra)* is comparatively scarce in the province, but the species could be used in reforestation to advantage; of that in use in the Maritime Provinces 75 per cent is now imported.

Burr Oak *(Quercus macrocarpa)* is the only other commercial species of oak in Nova Scotia. It is hard and tough and useful for axe and pick handles, flooring and interior finish.

Poplar *(Populus tremuloeides)* or aspen is one of the first trees to appear in burned over areas, its light tufted seed being carried long distances by the wind. This variety is used for excelsior, match stick, and berry boxes. Much is also used for pulp, as is the large-toothed poplar *(Populus grandidentata)*.

The only other native species of poplar in Nova Scotia is the balsam *(Pop. balsamifera)*, whose uses are similar to those of aspen.

Ash. The white *(Fraxinus nigra)* and black *(Fraxinus americana)* species are the only varieties in Nova Scotia of the four found in Canada. Neither are at all common at the present time.

White Elm *(Ulmus americana)*, Black Cherry *(Prunus Serotina)* and Ironwood *(Ostrya virginiana)*, also called hornbeam, are native in Nova Scotia, but do not occur in large quantities.

AGRICULTURE

There is abundance of fertile land in Nova Scotia for general farming and especially for the small holdings which should supply the needs of the larger towns, the manufacturing and mining centres and the summer visitors from the crowded cities of the United States. With the exception of the Annapolis valley or "Garden of Nova Scotia," and the dyked or reclaimed lands which have long been a feature of the province, there are no wide or continuous stretches of cultivated soil. Nor are there any large rivers with rich and broad valleys, but there are a hundred smaller rivers and streams, the intervales of which give fertile soil in the slate as in the richer limestone formation. In the seven northern counties, including Cape Breton island, conditions of soil, climate and topography have resulted in a greater proportion of good land and therefore of wider clearings than on the Atlantic slope. In these southern and western counties one of the most fertile intervales is that of the Musquodoboit river, the upper branches of which

Nova Scotia's Dykelands, famed for Hay and Pasture

run through a limestone formation. This valley has been opened up by a recent 80 mile extension of the Canadian National Railways to a point 40 miles east of Halifax. In the slate formation there are rich intervales such as the Tusket valley, between Kemptville and the sea, and the valley of the lower Sissiboo. As a rule, however, the cultivated land in these counties lies along the seaboard, for the interior granite areas do not invite settlement. The uplands of the province with their moist climate and good pasturage provide, according to a report

of a Scotch commission, a million acres admirably adapted for sheep ranges. For all young stock the natural grass and clover will continue to be an economic source of feed.

The 50,000 acres of dyked marsh lands reclaimed from the sea, lying mainly at the head of the Bay of Fundy, have for a century or more produced crops of hay up to three tons per acre. Their continuous fertility is due to the rich mud brought in by the tide and either deposited on the land by flooding or spread on the higher level.

The average price of farm land in Nova Scotia, as in British Columbia, is raised by the large proportion of valuable fruit farms. Improved farms, however, are still to be had as low as $20 to $25 an acre.

The Natural Resources Intelligence Service of the Department of the Interior, Ottawa, publishes "A list of unoccupied and uncultivated lands in the province of Nova Scotia," arranged according to counties with the acreage of each farm and the name and address of the owner. This publication is mailed free of cost to applicants.

Prices of Farm Land

Occupied farms, including improved and unimproved land, houses and farm buildings, had an estimated value in 1921 for Nova Scotia of $35 per acre. In the other provinces values were:—

British Columbia	$122
Ontario	63
Quebec	59
Prince Edward Island	46
Manitoba	35
Saskatchewan	29
New Brunswick	28
Alberta	28

Prices vary greatly according to location, soil, and nature of use; in 1920 the average prices were as follows:—

In mixed farming counties (Colchester, Cumberland, Pictou, Antigonish, and parts of Hants), cultivated land ran from $20 to $100 per acre.

Mature orchards in good bearing $300 to $500.

Fruit counties (Annapolis, Kings, Hants), from $60 to $200.

Dyked marsh land (Bay of Fundy and Minas Basin), from $80 to $300.

Fruit lands in the sand belt, from $25 to $40. (Cost of producing bearing trees brings total price up to that of the naturally good land.)

"Intervale" land in any county, from $30 to $100.

Pasture land (rough cut over timber land), $5 to $20.

Woodland, $4 to $10.

Pasture, Hay and Roots

Of the land in agricultural use in the seven southern counties about 60 per cent is pasturage; in the seven northern counties, and also in the four counties of Cape Breton island, 50 per cent.

For beef and dairy cattle and for sheep, hay and roots are essential, and the climate of Nova Scotia has the moisture as well as the sunshine needed for their growth. Clovers, red, alsike, and white, grow abundantly, and certain

varieties of hardy alfalfa are coming into use. The Nova Scotia Agricultural College has experimented with the various alfalfa seeds and find that "Grimm" and "Ontario variegated" passed the test of the severe winter of 1916-17.

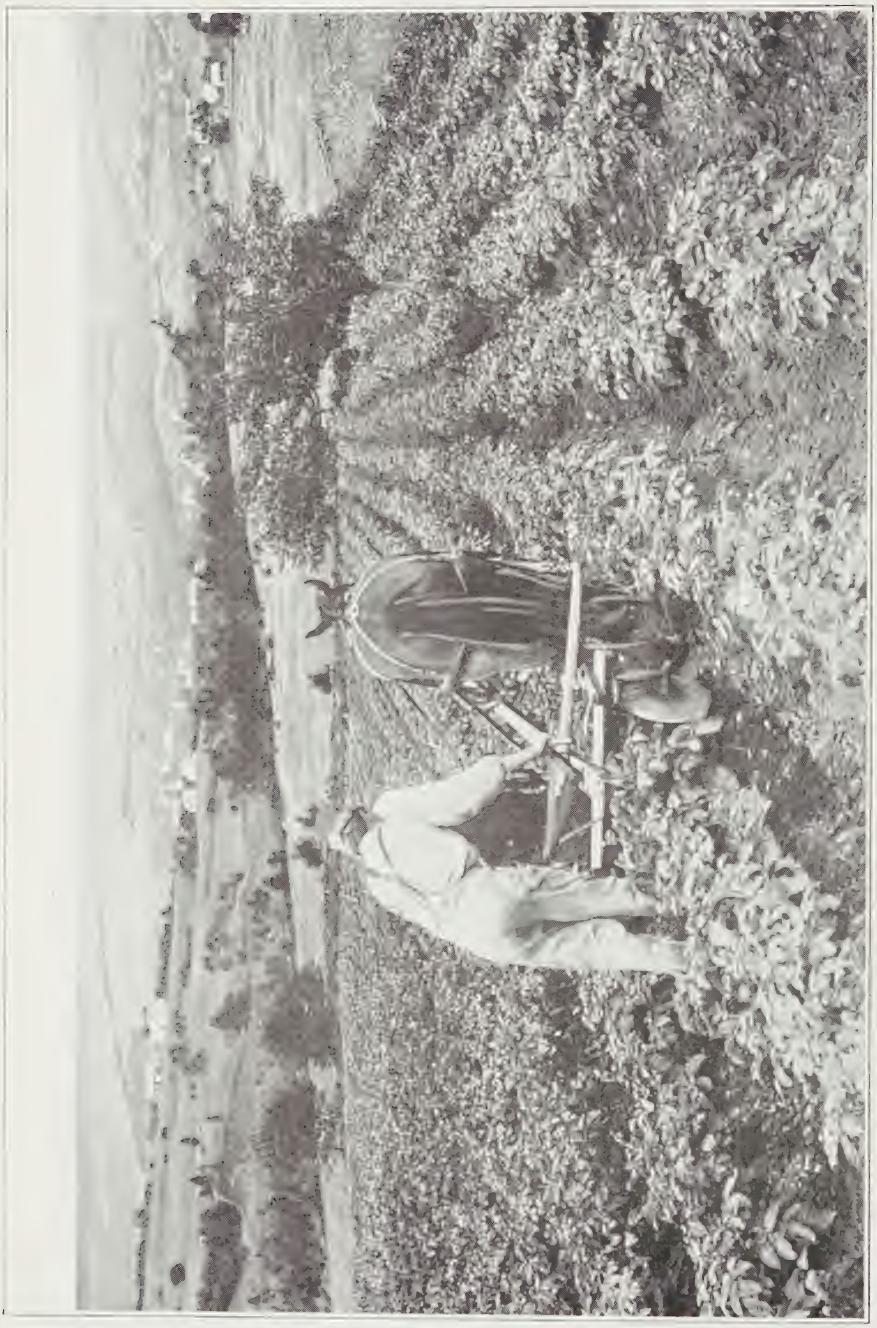
Turnips in 1921 on several farms ran 1,200 to 1,400 bushels to the acre, the estimated average of 509 for the province pointing to the value of scientific production. Yarmouth has a reputation for good Swede seed, and at the Dominion Experimental Station at Kentville a small quantity of selected turnip seed is grown. Potatoes are largely grown in the Annapolis valley for export to Havana.

Sheep and Wool

The sheep industry in the province is more than 200 years old, records of 1693 telling of 173,271 sheep in "Acadia." In 1921 Nova Scotia ranked fourth among the provinces in the number of sheep, with 324,260. To the total Canadian wool clip of 21,251,000 pounds Nova Scotia contributed 1,853,468 pounds. The average price in Canada was 14 cents a pound, as compared with 60 cents in 1918 and 1919. The price in Nova Scotia was 15 cents (unwashed) and 20 cents (washed), compared with 21 cents and 26 cents in 1914, and 71 cents to 88 cents in 1918. The average clip per sheep for Canada was $6\frac{1}{2}$ pounds; for Nova Scotia $4\frac{3}{4}$ pounds. All the coarse wool large breeds such as Leicesters, Lincolns and Cotswolds do well in Nova Scotia, and also the medium wool breeds such as Hampshire, Cheviot, Shropshire and Southdown. The climate on the mainland demands shelter for sheep for the winter months, though on certain islands along the south shore they are out all the year and feed on the sea kelp washed up on the shore. These are the wild sheep descended from those brought in by early settlers. Enterprising farmers on the south shore, seeing that they fed off kelp in winter as cattle do in Alaska, corralled them on nearby islands. In Nova Scotia, so far, small flocks of from 15 to 75 have been the rule, but with the million acres of good pasturage available, often with white clover growing naturally, the tendency is to put the industry on a wider basis. With a view to improve the breed of sheep the Dominion and Provincial Governments are co-operating to provide for the farmer young ewes and rams of selected stock at prices little higher than those paid by the butcher for killing. Nearly 35 per cent of the sheep are found in the three neighbouring counties of Inverness, Antigonish and Pictou. Recent legislation imposes a tax on dogs and provides compensation by the owner of the dog or by the municipality for loss of sheep injured by dogs. Two annual payments of $5 are made to any sheep owner with a ewe flock of ten or more who purchases a pure-bred lamb for the first time. In 1921 there were forty-two applicants for this bonus. Co-operative marketing of sheep and lambs under the auspices of the Live Stock Branch of the Dominion Department of Agriculture has considerably increased the farmers' profit. Grading of pure-bred rams has also been welcomed.

The Co-Operative Wool Growers

In 1911 the Sheep Commission appointed by the Minister of Agriculture regretfully reported that "from shearing to marketing no country in the world handles its wool in a worse manner than Canada." This is not so to-day.



Banking the Potato. Nova Scotia Potatoes find ready markets in New England

In 1914 the Sheep Division of the Agricultural Department was organized and, throughout the Dominion, Wool Growers' Associations were formed to produce, classify and market good wool. In the first year only 209,129 pounds were thus graded and sold, but in 1921 4,686,220 pounds. The Co-operative Wool Growers, Ltd., with warehouses in Toronto, has been incorporated in the last few years. Thus Dominion wool is now intelligently sheared, packed and sorted. There are now several Wool Growers' Associations in Nova Scotia, and grading stations at Truro, Antigonish, Port Hood and elsewhere.

Pure-Bred Live Stock

Provision is made by the Dominion Government for the supply of pure-bred sires in cattle, sheep and swine to associations of ten or more farmers who unite and comply with a few simple regulations. (In all Canada there were 2,000 such associations in 1918. In Nova Scotia there were 29.) The increase of such associations has improved the breeds of live stock in certain districts where they had shown a tendency to deteriorate.

Horses

With the coming of the "car" light horses are not so much in request, but draught and delivery horses are much needed in the cities. In Nova Scotia much is being done to improve the heavy breeds, Clydesdales, Percherons,

Nova Scotia takes a well-merited pride in her Farm Horses

etc. In 1918 there were less than 60,000 horses and not enough being bred to keep up the supply. An Act of 1913 provides that every stallion offered for service in the province must be enrolled with the Department of Agriculture.

Cattle

The total head of beef and dairy stock in Nova Scotia amounted in 1922 to 319,702, so that there is room for a very large increase, For beef, Herefords,

Angus, Devons all do well; for dairy purposes, Jersey and Guernsey, Ayrshire, Shorthorns and Holstein.

At present there are no abattoirs in the Maritime Provinces. To say nothing of local consumption, a fair amount of live stock for export would probably be available if there were abattoirs, and abattoirs would probably be built if cold storage facilities were adequate.

Hogs

Nova Scotia ranks only seventh among the provinces in swine. As a consumer of the separated milk returned from the creameries and of garbage otherwise wasted, the hog is a money-maker all the time.

Dairying

Dairying can be indefinitely extended. In 1911 there were 152,000 cows producing on the average 3,300 pounds of milk; in 1922, 143,780, producing 4,055 lbs.

In 1911 there were 275,000 pounds of creamery butter, in 1921 3,094,768 pounds. In 1918, 68 per cent of the butter was home-made, but the patrons of the creameries increase yearly. In 1921 there were twenty-three creameries.

Cheesemaking in 1919 decreased almost to the vanishing point, a fact due in part to the far larger consumption of ice-cream and milk. In 1921 the production was only 28,037 pounds, and only one factory producing.

The Government railways provide a weekly refrigerator car service for butter, of which shippers can forward any amount from a one-pound package up, being guaranteed a certain proportion of the carload value. The butter must be inspected at Halifax.

With the growth of co-operative ideas and knowledge of up-to-date methods, admirably fostered by the work of the Nova Scotia Department of Agriculture with headquarters at Truro, the province should be able not only to supply its own demands and contribute to those of the Dominion, but to ship in larger quantity to Britain, which consumes yearly five hundred million pounds of imported butter. Before the war, weekly train loads of butter were collected in Siberia, sent by rail to Riga, and thence by water to England, where it was sold as Danish butter. Nova Scotia can well take the place of Siberia.

Cold Storage

Government officials are now surveying the situation in reference to the provision of a public cold storage plant at Halifax. Cold storage facilities at harbours and on ships are a first need in view of the expansion of the trade with Europe in butter and eggs, fruit and other perishable products.

The value of all products of dairy factories in 1921 was $2,002,406.

Poultry and Eggs

Here again the demand is far greater than the supply. One of the difficulties has been the cost of feed, now mostly imported into the province at more than double the cost of a few years ago. The manufacture of poultry food from fish waste would do much to help, and the Poultry Department has aided in supplying buckwheat seed for any spare land the householder may have. Co-

operative Egg Circles are now collecting the eggs and marketing them at top prices. For instance four circles collected 15,000 dozen eggs, stored them in tanks containing water-glass, the Government supplying the tanks, and thus added $1,500 to the profit. The industry is also aided by poultry clubs and shows and by the erection of demonstration houses at various points as models for the poultry-keeper. The report of the Agricultural Department gives a detailed record of a profit of $513.09 on an outlay of $580.76.

Mining centres like Sydney and New Glasgow offer immediate returns for farm products, such as eggs, bacon and vegetables. When a miner is working in a tunnel at a temperature of 84 degrees, he needs four or five meals a day, and earns high wages. As wages rise, so does the price of food, and almost the full benefit of this high price in local supplies is or should be the perquisite of the farmer and his family and of them alone in any community.

Bees

The honey now made in Nova Scotia is not beyond the demand of the local markets, but there is no reason why the abundant native flora, fireweed, clover, etc., to say nothing of sown crops such as buckwheat and the blossoms of all varieties of fruit, should not produce a yield for export to the unlimited market outside. The advice of the Government specialist can be had for the asking. In parts of the Annapolis valley and in Cumberland county bee-keeping is already an industry; to ensure pollenization bees are in fact a necessity to the orchardist. The industry requires little capital, and should prove in Nova Scotia as profitable as it now is in Quebec. The yield of surplus honey in six years from the Nappan Experimental Station was exceeded only by that from Ottawa. The yield at Kentville in 1921 was 122·8 pounds to each colony. In 1920 6,000 stands in the province were reported.

NUMBER OF LIVE STOCK IN 1922

Horses	58,914
Milch cows	144,937
Other cattle	174,765
Sheep	329,345
Swine	47,504
Poultry	929,088

Live Stock Prices	1921	1919
Horses	$98	$127
Milch cows	44	76
Other cattle	27	54
Sheep	4	11
Swine	18	29

The total value of farm stock in Nova Scotia was in 1921 $19,716,000, compared with $39,240,000 in 1919.

Field Crops

The Dominion Minister of Agriculture stated in the House of Commons on March 27, 1918, that Nova Scotia was going to produce enough wheat and coarse grain to supply its demand, whereas every other year it had imported.

The 1918 report of the Nova Scotia Secretary for Agriculture stated that the wheat area had doubled since the outbreak of the war, and that the oat acreage for 1918 showed an increase of 15 per cent over that of 1917. The report for 1921 shows, as might be expected, a return to the normal acreage of wheat, and other crops.

AGRICULTURAL YIELDS FOR 1919 AND 1922

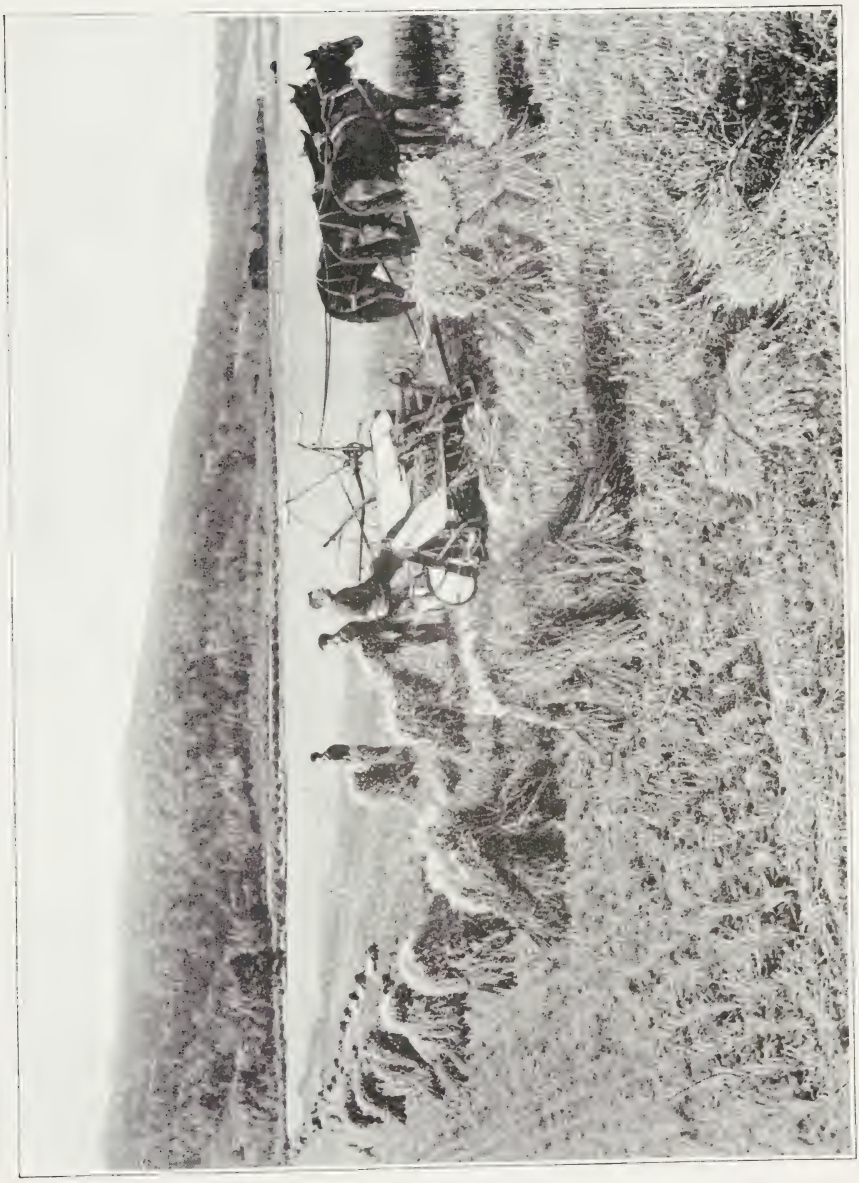
Crops	Acres		Bushels per acre		Total yield	
	1922	1919	1922	1919	1922	1919
					Bushels	
Wheat	15,142	31,546	21·5	19·2	325,555	605,610
Oats	136,723	150,010	33·7	37·5	4,602,081	5,633,078
Barley	8,655	11,479	24·2	27·2	210,330	312,096
Rye	369	516	.....	25·0	.....	12,900
Buckwheat	9,391	18,746	23·3	22·7	225,696	413,694
Peas	750	1,782	23	17·9	17,825	33,181
Beans	2,946	7,321	22	12·8	65,604	94,095
Mixed grains	4,710	5·047	31	32	141,390	173,024
Potatoes	38,974	50,724	151	149·9	5,908,210	8,561,798
Turnips	12,753	18,521	509	537·7	6,502,390	9,996,257
Mangels	1,173	2,196	507	500·8	557,750	1,099,935
			Tons		Tons	
Fodder corn	6,237	4,565	12	9·4	78,890	45,104
Other fodder crops		3,357		9·5		32,134
Hay	569,454	685,915	1·7	1·85	971,823	1,279,836
Pasture	1,021,848	1,021,848				
Small fruits	5,473	9,724	.....	.....	Value.....	$1,000,000
					bbls.	
Apples	.....	.....	.....	.....	1,600,000	1,500,000
Total acreage (exclusive of apples)	1,834,598	2,023,317				

The value of the agricultural produce of Nova Scotia for 1922 was estimated at $30,019,210; for Canada, $1,420,170,000.

Flax for Fibre

The climatic conditions needful for the growing of flax are a long and moderately warm growing season that is not liable to drought and a considerable amount of moisture in the air. The parts of the Dominion most nearly fitting these needs are British Columbia, southwestern Ontario, the parts of Quebec lying near the St. Lawrence, and the Maritime Provinces generally. Any soil that will produce a good crop of oats is suitable. An acre of flax should produce nine bushels of seed and two tons of straw. The growing of flax requires much hand labour and not more than one or two acres are recommended at first. The fibre flax plants must be pulled up by the roots. This being a slow method when done by hand as in Europe, the Dominion Dept. of Agriculture has evolved a machine to "pull" four to six acres a day. The subsequent processes of "deseeding," "breaking" the covering of the fibre, "scutching," "retting" by warm water in tanks to meet Canadian conditions, and combing the tow for market are all to be seen in the newly rebuilt model factory at the Experimental Farm, Ottawa.

Before the war such flax as was grown in Canada was used commercially for linseed only, but the extraordinary demand for linen made the fibre more



The Oat Crop of Nova Scotia averages Five Millions Bushels a year

important. Whereas in Ontario the flax area was 4,000 acres, it rose in 1920 to 31,000, and both in Ontario and in Quebec linen mills are operated.

In 1766, Lieutenant-Governor Franklin stirred the jealousy of British manufacturers by telling Lord Shelburne that "the townships of Truro, Onslow and Londonderry, consisting in the whole of 694 men, women, and children, composed of people chiefly from the north of Ireland, make all their linen and even some little to spare to the neighbouring towns. This year they raised 7,524 pounds of flax which will probably be worked up in their several families during the war." The report of the Nova Scotia Agricultural College for 1921 states that flax could be grown at a profit in Nova Scotia if mills were established within reach of the grower but not till then.

Experimental Farms and Illustration Stations

Experimental Farms are maintained by the Dominion Government at Nappan in Cumberland county and at Kentville in Kings. The Nappan farm is one of the first four experimental farms established by the Act of 1886.

Results of Scientific Cultivation at Kentville

The Kentville farm was originated by the Nova Scotia fruit growers' association of the Annapolis valley and was taken over by the Dominion Department of Agriculture in 1911. This farm covers about 450 acres and includes orchards with 500 varieties of fruit trees, arable land for roots and cereals,

dyked lands, pasture and woods with the buildings suitable for live stock, dairy, poultry and beekeeping.

Here and at Nappan everything is provided for scientific agricultural experiment and to give practical aid free of cost to the inhabitants of the province in fruit and general farming.

Farm Buildings in one of Nova Scotia's Modern Farms

Illustration Farms are now known as Illustration Stations and are operated under the advice of a division of the Central Experimental Farm at Ottawa at fifteen points in Nova Scotia:—

Yarmouth, Yarmouth County	Operator,	Dr. I. M. Lovett
Belliveau Cove, Digby County	"	Adolphe Belliveau
Upper Granville, Annapolis County	"	J. G. Campbell
Newport, Hants County	"	Chas. Zwicker
Kennetcook, Hants County	"	Willard Ettinger
Middle Musquodoboit, Halifax County	"	R. B. McCurdy.
New Glasgow, Pictou County	"	Geo. P. Fraser
Tatamagouche, Colchester County	"	G. B. Clark
Heatherton, Antigonish County	"	D. W. Grant
Mabou, Inverness County	"	Duncan Boyle
Sydney River, Cape Breton County	"	M. P. Moreshead
Christmas Island, Cape Breton County	"	J. A. McNeil
N. E. Margaree, Inverness County	"	Thos. E. Ross
Big Baddeck, Victoria County	"	J. A. Kiley
Middle River, Victoria County	"	Forbes McDonald

The existence of these Illustration Stations should be of great value to any settler in the neighbourhood and new arrivals intending to farm would do well to get in touch with the owners.

Federal Appropriation

Under the Agricultural Instruction Act of 1913 the province of Nova Scotia, until 1923, received about $80,000 from the Dominion Government,

which is equivalent to about 40 per cent of the total annual expenditure of the Provincial Department of Agriculture. The appropriations from this fund in 1921 were as follows:—

Truro College of Agriculture	$31,000
Agricultural Societies	12,000
Short courses	1,000
Dairying	6,000
Poultry	1,500
Bee keeping	1,200
Drainage, soils and fertilizer	2,000
Field crops and fruit growing	2,000
Women's work	5,000
Entomological work	7,500
Agricultural instruction in Pathe Schools, etc.	12,000
	$81,200

The Act of 1923 not being effective after March, 1923, a special appropriation for 1923-24 has been made by the Dominion government.

Agricultural Societies have increased in number every year (except 1919) for 58 years. There are now 255, with a membership of 8,898, that have qualified for the grant. There are also nine active County Farmer Associations.

FRUIT FARMING

The Apple

Apple orchards in Nova Scotia are what orange and lemon groves are in California—a staple industry known far and wide and a lodestone to attract desirable settlers. At present the Annapolis valley and the Cornwallis valley, an extension of this, are considered the most suitable region for apple growing, but the Provincial Government has set out thirty-seven model orchards of one or two acres in various spots, and have shown by practical experiment that other parts of the province, notably Antigonish and Hants, Pictou and Cumberland counties, are likely to claim attention. The first model orchard was set out in 1901, and in 1921 produced 160 barrels an acre. A profitable crop is estimated at 100 barrels an acre for a full grown orchard. The danger in certain districts lies in late spring frosts and in unusually severe winters.

The French introduced the apple in 1633. From 20,000 barrels in 1880 the pack has increased to nearly 2,000,000 barrels. As the citrus fruit industry in Florida and California grows and grows in spite of an occasional year of killing frost, Nova Scotia can well afford on rare occasions to lose a percentage of its crop as in the windstorm of August 10, 1917. The record year was 1911 when 1,734,000 barrels were packed and sold from the Annapolis valley and neighbourhood alone. In "off years" the pack may be cut in half.

Nova Scotia as a province has won the gold medal of the Royal Horticultural Society for apples in competition with other parts of the Empire, while individual exhibitors at the same time took fourteen medals. At the Imperial Fruit show in December, 1921, held at the Crystal Palace in England, Nova Scotia growers won several first and special prizes and at the Exhibition in 1922 Nova Scotia took first prize in Classes 1 and 2 of the British Empire section. This section was open to *bona fide* fruit growers or associations of such growers *in any part of the British Empire.*

The Annapolis Valley—"The Garden of Nova Scotia"—stretches for seventy miles from the head of Annapolis basin to the bay of Minas with a varying

width of from 10 to 15 miles. The North Mountain lying along the Bay of Fundy from Cape Blomidon southwest to Brier island forms a barrier that shelters it from the Northwest winds and fogs, and parallel to this is the South Mountain on the other side of the valley. Of the enclosed valley area only about one-tenth is under cultivation. The price of land varies from $60 per acre to $200 for a six-year-old orchard and $1,000 for one in full bearing. As in other parts first settled by the French, the farms are usually in narrow strips of from 20 to 120 acres, having meadow hay land in the bottom, orchard land midway, pasture and wood above.

A full-bearing orchard of ten acres should provide ample work for a settler and a fair living, but adjoining land for mixed farming is a comforting possession in an "off year." Even in the special fruit-growing areas mixed farming is recom-

The Apple Orchards of Annapolis Valley in blossom time are one of the most beautiful sights in Canada

mended as an adjunct to the orchard, for, though it is possible to maintain fertility by the ploughing under of green crops and by commercial fertilizers, real stability is best obtained by catch crops such as potatoes, beans, roots or flax. Farmers with the live stock necessary to keep the land in good shape for such crops weather best a lean fruit year and have, to boot, the more fertile soil.

Details of the fruit industry and of land available or for sale may be obtained from the secretaries of the Board of Trade at various centres in the valley, such as Annapolis Royal, Middleton, Kentville, and Canning.

The cost of setting out an orchard and taking care of it until it becomes profitable depends on many variable factors. The size of the orchard and the nature of the soil, the capital spent in farm equipment and buildings, the market for vegetables and berries grown between rows, the livestock kept, the need and cost of commercial fertilizer—and above all in importance the amount of work done by the owner and his family and the personal equation

of energy and thrift—all these points enter into costs. Experience, personal visits, local knowledge, and disinterested advice alone give assurance.

The man who purposes to be an apple grower would be wise to work for a time as a hired man with owners of orchards, and not to lay out equipment in the dark, except he prefers as many do to "buy experience."

The case is different where an intending grower has a capital of $15,000 to $20,000, wherewith to buy a paying orchard and a home outright. It then becomes a matter of attraction to a particular property and neighbourhood, of observation how the orchard farm has been cared for, and a careful exam-

A few of the 1,882,458 Barrels of Apples which Nova Scotia shipped in 1922

ination of the vendor's certified account books. When he has bought the property it depends on the buyer whether it will deteriorate, or become more profitable than before.

Cranberries

The crop from bogs near Auburn in King's county has of late years averaged 5,000 barrels.

Canada in 1921-22 imported 16,955 barrels, valued at $200,658, and paying a duty of $50,167. The cranberry bogs sparsely scattered in Nova Scotia, Prince Edward Island, Quebec, and British Columbia do not meet the home demand. Plantation of another 500 acres on peaty land, otherwise useless, might well be profitable considering the protective duty of 25 per cent *ad valorem* and the distance from Cape Cod, Massachusetts, where the imported berries are now grown. The fortunate possessor of a cranberry bog can get a yield of from 50 to 60 barrels an acre, and sell them for $5 to $10 a barrel to satisfy the appetite at the Thanksgiving and Christmas seasons.

Other Fruits.

Cherries or plums are also grown largely in this district, and profits of $200 to $300 an acre have been taken by the sale of strawberries and raspberries.

The United Fruit Company of Nova Scotia embraces forty Co-operative Fruit Companies and does most necessary work in marketing and regulating

Picking Cherries. Fruit in abundance besides the apple is grown in Nova Scotia

shipments, and in buying fertilizer and implements wholesale. The marketing, packing and grading of apples is regulated by Act 8-9 George V. In 1914 one cent a pound covered every expense after picking to delivery at the London docks.

Medicinal Plants

There are many plants in Nova Scotia, as elsewhere, whose leaves, roots, seeds or fruit are of commercial value when properly dried. Among the commonest of these are bloodroot, wintergreen, tansy, horehound, caraway, yellow lady's slipper, balm of gilead, spearmint and peppermint. Lists of such plants with instructions on collecting and drying are to be found in "Medicinal Plants and their Cultivation in Canada," by J. Adams, Experimental Farm Bulletin No. 23, Department of Agriculture, Ottawa.

Evaporated Fruits and Vegetables

Dehydration has made an immense advance since it became a question of feeding armies. Potatoes and onions have been dried by the million tons

Nova Scotia Strawberries. Picking for markets that never cry: "Enough"

and apples in proportion. Nowhere in Canada can fruit be properly sun-dried and so far the apple is the only fruit that has been artificially dried on any large scale.

(Bulletin No. 24 on "Evaporated Apples" issued by the Department of Agriculture contains plans and illustrations of the plant and machinery used in the industry.)

An Act of Parliament and an Order in Council of March, 1916, ensure proper inspection and standardization, so that home and foreign buyers can now buy with confidence.

Considering the lightness for transport of dried fruit and vegetables as compared with the natural or canned article and the immunity from all danger of ptomaine poisoning, it may be taken as certain that the dehydrating process will develop rapidly and be extended more widely to all kinds of fruit and vegetables, pears, peaches, berries, corn, peas, beans, turnips, carrots, spinach, etc., and will be a means of saving to best advantage the enormous mass of ripe fruit and vegetables now not marketed. Carefully studied plans for dehydration equipment suitable to a community of growers have (1923) been put into practice by the Department of Agriculture, Ottawa, to which inquiries should be addressed.

FUR FARMING

Though it may be undesirable that the zeal for fur farming should rival a craze for "black tulips" or "Belgian hares," yet the industry is well worth consideration in a province such as Nova Scotia, with plenty of suitable land and the right climate. The world market demand for fur increases yearly, and, as the limits of the fur-bearing regions narrow, will have to be more and more supplied from domesticated breeds. The price of $2,900 for a silver fox pelt or $35,000 for a breeding pair may not recur, but, seeing that North America produces about one-quarter of the one hundred million dollars-worth of the worlds' marketed supply, Nova Scotia may well look for a share in the industry.

The conditions needed for a successful fox ranch are humidity, a sheltered area, a woodland of birch, spruce, fir and cedar, a ground covering of heath and shrubs like the blueberry, a climate cool in summer but cold enough in winter to produce heavy fur and over-hair, and a soil with hardpan to prevent burrowing. Such conditions are common in Nova Scotia. Nova Scotia is also well within the natural range of the North American raccoon, which hibernates and is comparatively tame. The yearly production of American raccoon pelts is about 600,000, the auction price (October, 1919) reaching $16.50.

The family which comprises mink, marten, fisher, otter and skunk (easily de-scented) is a subject of United States Government experiment. In Canada alone there are fifty mink ranches. Especially suitable to Nova Scotia and its sheep districts, though the stock is hard to obtain, is the Karakul sheep, which supplies the fur market with "Persian lamb" or "Astrakhan." This was the first animal bred for fur. Though the export of Karakul is now forbidden from Russia or Bokhara, or was in the times of Czardom, the strain in North America is still kept up from stock imported to Texas in 1908 and 1912. The Eastern Karakule Company of Windsor have been breeding Karakules

since 1914. It has been found that the crossing of the Karakul with the coarser-haired breeds of sheep such as Lincolns and Cotswolds produces a lamb fur of desirable quality.

No fur farming is allowed except under a permit from the Commissioner of Forests and Game. In 1922 there were in Nova Scotia 6,118 fur-breeding animals in captivity, including 1,601 silver foxes. There were 106 fox farms, 6 mink, 5 raccoon, 1 Karakul sheep, 1 beaver and 1 muskrat. The fur-bearing animals were valued at $379,979, and the land and buildings at $129,193. The average value of Canadian silver fox pelts in 1922 was $116.

WEALTH PRODUCTION OF NOVA SCOTIA
RETURNS FOR 1922

Coal	$ 30,180,000
Coke and by-products	2,600,000
Gold and other minerals	214,000
Gypsum, limestone, etc	2,850,000
Building materials and clay products	1,730,000
Iron and steel products	11,000,000
Fisheries	12,720,000
Manufactures, ships and freight	55,360,000
Products of the farm	34,318,500
Products of the forest	11,180,000
Game and furs	890,000
Grand total	$163,042,500

WATER-POWERS

During the past few years it has been demonstrated that the province of Nova Scotia has dependable water-power resources of a magnitude previously quite unrealized. The Dominion Water Power Branch, Department of the Interior, Ottawa, co-operating with the local authorities, is carrying on careful investigations involving both the actual measurement of water supply from day to day in the more important streams of the province and the advantages of individual power sites. Moreover, the actual construction and operation of hydro-electric developments by the Nova Scotia Power Commission has demonstrated that these investigations are to be relied upon.

It is now certain that, besides an abundance of small power sites ideal for purely local purposes, Nova Scotia has many other sites which from their location, distribution and size are well suited to meet the immediate and prospective industrial needs of the country. The large precipitation throughout all parts of the province with its even geographical distribution, the innumerable lakes available for storage purposes and the proximity of the larger power sites to deep sea harbours are distinct advantages. It is exceedingly fortunate that there are a number of power sites which are large enough to secure maximum economy in construction and operation and yet not too large for existing and growing power demands. A proper balance may at all times be maintained between capital expenditure and revenue.

At the present time the commercial capacity of the known and investigated sites in Nova Scotia is about 300,000 horse-power. Of this amount 260,000 horse-power comprises sites of over 1,000 horse-power capacity. As compared with figures given for some other provinces and countries this may not appear large but it should be remembered that all sites in Nova Scotia are readily

Pulp Mill on Sissiboo River. The commercial capacity of known and investigated water-power sites in Nova Scotia is 300,000 horse-power

accessible and within economic transmission distance of well settled territory. At the present time the total hydraulic development in Nova Scotia is actually about 47,000 horse-power so that there is a large field for development. Information concerning some of the larger sites in the province is given herewith:—

River	Commercial capacity h.-p.	Remarks
Sissiboo, two sites	6,800	3,000 h.-p. installed
Bear River, five sites	17,000	
Lequille	4,400	
Nictaux, two sites	6,300	200 "
Paradise Brook	6,000	
Gaspereau, two sites	18,700	580 "
Forks (Avon R.), S. Branch, two sites	5,000	
Fall, two sites	1,200	
East River, Pictou, three sites	1,800	
Tusket River, nine sites	16,000	350 "
Liverpool, eight sites	80,000	7,190 "
Petite Riviere, three sites	1,150	300 "
Medway, twelve sites	29,000	4,195 "
La Have, eight sites	15,000	2,990 "
Mushamush, three sites	2,700	800 "
Gold, four sites	5,600	
North East and Indian	12,500	10,700 "
Sackville	1,900	
Tangier, two sites	6,400	300 "
East River, Sheet Harbour	14,000	
West River, Sheet Harbour	2,200	
Liscomb, two sites	6,000	500 "
Lake Ainslie	7,500	
St. Croix	7,750	

It should be noted that for the same average continuous water supply the capacity of the machinery installed varies with the purpose for which power is used. The figures given are on a conservative basis. For example, to fully utilize the water supply of the North East and Indian Rivers under load contions realized with the existing uncompleted development, machinery with a total capacity of about 15,000 horse-power will have to be installed although the capacity of these rivers as given in the table is 12,500 horse-power.

Having ascertained beyond any doubt that the province has very considerable water power resources the local authorities have taken active steps to facilitate their development. The general administration of all water resources in the province is in the hands of the Minister of Public Works and Mines by virtue of the Nova Scotia Water Act of 1919. This Act is administered with the idea of assisting in securing water rights to those who may desire to develop the same and at the same time ensure that power sites are developed to their fullest economic capacity. In addition the Nova Scotia Power Commission has been organized under suitable legislation to actually carry out developments by public enterprise where development by such method seems desirable.

Within the past year or so the Power Commission has completed and is now operating developments at St. Margaret's bay and on the Mushamush river

La Have River, Lunenburg County, one of Nova Scotia's Power-producing Waterways

in Lunenburg county. The St. Margaret's bay development, with a present installation of about 11,000 horse-power, and a proposed ultimate installation of about 15,000 horse-power, is now supplying all the electrical requirements of the city of Halifax, the largest city and the capital city of the province, and its environments. The development on the Mushamush river while much smaller, having a capacity of about 800 horse-power, is no less efficient than that of St. Margaret's bay nor any less important from the standpoint of meeting the requirements of the district. It supplies the Lunenburg and Riverport district.

Construction work is now in progress on a development at East River Sheet Harbour, intended to meet the requirements of the Pictou county industrial area, including New Glasgow, Trenton, Stellarton, Westville and Pictou, as well as the town of Truro. The initial development on this river, when completed, will have a capacity of about 6,000 horse-power, while the complete development of the whole river will afford from 15,000 to 20,000 horse-power. In addition a number of sites have recently been completed or are under construction by private organizations; for example, on the Gaspereau river and the Avon river.

A number of sites are under consideration for development in the near future, notably one at Bear river, with a capacity of about 10,000 horse-power, and one on the Economy river. In so far as the Power Commission is concerned it stands ready to furnish information to municipalities or others with regard to the cost of power and if such information be satisfactory to actually carry out developments on a co-operative basis.

Many of the smaller towns of the province have been supplying themselves with hydro-electric energy for some years past. With such developments and those more recently completed or contemplated as outlined, the more pressing power needs of the province of Nova Scotia will be met in a satisfactory manner and at rates comparable with power rates elsewhere. At the same time the foundation of a net work of transmission lines ultimately supplying all the more populous centres of the province, including the chief rural communities, will have been laid.

IMMIGRATION

It is noticeable how few of the present population are classified as "foreign born." Of these in 1917 there were only 10,972 and of these again nearly one-half were kindred immigrants from the United States. The waves of immigrants to Canada, gathering force since the battle of Waterloo, swept westward and were joined by Nova Scotians heading for the newly-formed provinces; but Nova Scotians now, more than ever, are realizing how good the chances are in their native or adopted land.

The immigration to Nova Scotia in 1922 shared in the decrease of that to Canada as a whole, which fell from the maximum of 402,432 in 1903 to 89,999 in 1922. The last figures for Nova Scotia show an immigration of only 1,654 in twelve months, made up as follows:—

England	466
Scotland	142
Ireland	21
Wales	7
Newfoundland	425
Other British possessions	26
France	29
Norway, Sweden and Denmark	15
Other European countries	150
Asiatic countries	9
United States	364
Total	1,654

In the increase of immigration in 1923 and onwards Nova Scotia may be expected to have a fuller share than before of the incomers, whose selection

is more than ever a matter of care to the Federal authorities. Government restriction on immigration, the high cost of passage, the competition of other parts of the Empire and the dislocation of trade in general stopped the flow. Resumption of industrial activity resulting in certainty of employment in mines and factories will create a stronger local market for agricultural produce and make it necessary to increase the area of cultivation and the number of men on the land. That desirable immigrants can and will be obtained in sufficient numbers admits of no doubt. Whether they will make a permanent home in the province depends much on well thought out plans of settlement now being formulated.

Immigration Regulations

The intending settler will judge by the following extracts from immigration regulations and acts amended to April 14, 1923, that the Dominion is careful to safeguard the quality of its inhabitants and to keep at a distance undesirable or burdensome units.

Deportation.—Any person other than a Canadian citizen or person having Canadian domicile who within a certain period from time of landing has been convicted of a criminal offence in Canada or who has become a public charge or who is proved to be otherwise undesirable may be deported with all dependent members of his family at the cost of the steamship and railway company that brought him to Canada.

Entry is forbidden to those not of sound mind, criminals, prostitutes and beggars, to those likely to become a public charge, to those suffering from any disease likely to prove injurious to the public health, to anarchists, conspirators, etc.

An Order in Council (P.C. 183) of January 31, 1923, "having regard to unemployment now existing in Canada" prohibited the landing in Canada "of immigrants of all classes and occupation" *except*—

(a) *bona fide* agriculturists entering Canada to farm and having sufficient means to begin farming;

(b) *bona fide* farm labourers entering Canada to follow that occupation and having reasonable assurance of employment;

(c) female domestic servants entering Canada to follow that occupation and having reasonable assurance of employment;

(d) the wife or child under 18 years of age of any person legally admitted to and resident in Canada, who is in a position to receive and care for his dependents;

(e) a United States citizen entering Canada from the United States who shall satisfy the immigration officer at the port of entry that he has sufficient means to maintain himself until employment is secured;

(f) a British subject, by birth or naturalization in Great Britain or Ireland, Newfoundland, New Zealand, Australia, or the Union of South Africa, entering Canada directly or indirectly from those countries.

(NOTE.—These provisions do not apply to immigrants of any Asiatic race.)

Passports are not required from *(a)* British subjects as above defined landing in Canada directly or indirectly from Great Britain or Ireland, Newfoundland, New Zealand, Australia or the United States of America nor from *(b)* United States citizens, nor from farmers, farm labourers or female domestic servants landing in Canada from the United States, but *passports are required* from any alien immigrant sailing directly from the continent of Europe, and from any other alien immigrant not above excepted. Passports are not valid longer than one year from the date of issue, and must carry a proper visé.

Nova Scotia is the nearest part of the Empire in constant and direct communication with the British Isles. The distance to Liverpool or Glasgow is 2,400 miles, or less than half of that from Plymouth to Cape Town, South Africa (5,295), and about one-fifth of the voyage to Australia or New Zealand whether by the Panama or Suez canal. Fares are proportionately less, ranging now from $75 or £16 (third class) to $130 and more (first class). Settlers' effects are admitted free of duty.

Few of the foreign immigrants go on the land, but are attracted rather by the high cash wages of mining and other industries. The class of immigrant most sought after by the Provincial Government is the farmer with some capital or the farm labourer who will in time become a full-fledged settler. In 1914 farms were bought or rented by 54 immigrants with capital amounting to $300,000, and nearly 300 entered as farm labourers. To many of these immigrants the Provincial Government advanced money for the purchase of farms. Settlers, after passing through the hands of the Dominion Immigration officer on arrival are met by a representative of the Nova Scotia Department of Industries and Immigration, who directs to destination and gives information where to obtain employment. Lists of farmers needing help are available and also a list of farms for sale. The services of an expert valuer are offered free of charge to prospective settlers.

The Canadian Women's Hostel at Young avenue, Halifax, established by the Canadian Council for the Immigration of Women, attends to the reception of women seeking housework. They are met by the secretary and receive free lodging at the Hostel for twenty-four hours. Positions in families are readily found, and for new arrivals, at least during the first few months, the Hostel serves the purpose of a Women's Social Club. Catholic girls are taken care of by the Sisters in charge of the St. Teresa Home. Much friendly work for the stranger is also done by the Salvation Army Immigration Department.

The Y.M.C.A. Hostel is in Barrington street, Halifax. A training farm for boys is maintained at Falmouth, in Hants county, for boys sent out from Nottingham, England. Children are the special care of the Middlemore Home at Fairview, Halifax, which in the last 50 years has received nearly 5,000.

On March 31, 1922, 46 boys and 41 girls in Nova Scotia were under supervision by the Dominion Immigration Department.

FACTS FOR SETTLERS

Soldier Settlement Board

(District office for Maritime Provinces, St. John, N.B.)—The purpose of the Board is to purchase lands well located and of such fertility as to ensure profitable returns; to place on these soldier settlers fit to farm; to secure for them the best value obtainable in live stock, buildings, implements and plant and to provide such guidance as may be helpful to the settler and his family.

Loans at 5 per cent interest up to $7,500 are made to approved settlers buying lands through the board, and are granted only on condition of residence and cultivation until paid. All loans run for twenty-five years.

The qualifications of eligible settlers are:—

(1) To have served in a Canadian military force outside Canada or to be in receipt of a pension in lieu of disability incurred whenever he may have served.

(2) To have served in His Majesty's forces, or in those of any British dominion or colony in a theatre of war outside the country where he enlisted.

(3) To be a widow of any person in the above classes who died on active service, and who, but for his death, might have been a settler.

Imperial ex-service men, if eligible as above, are required to pay down 20 per cent of the price of land, stock and equipment, and to work on a farm in Canada for one year if they have previously farmed, or for two years if they have not.

It is important to realize that an eligible applicant can, under prescribed conditions, avail himself or herself of Dominion loans up to $7,500 at 5 per cent for the purchase and improvement of any suitable farm that may be for sale anywhere in Canada.

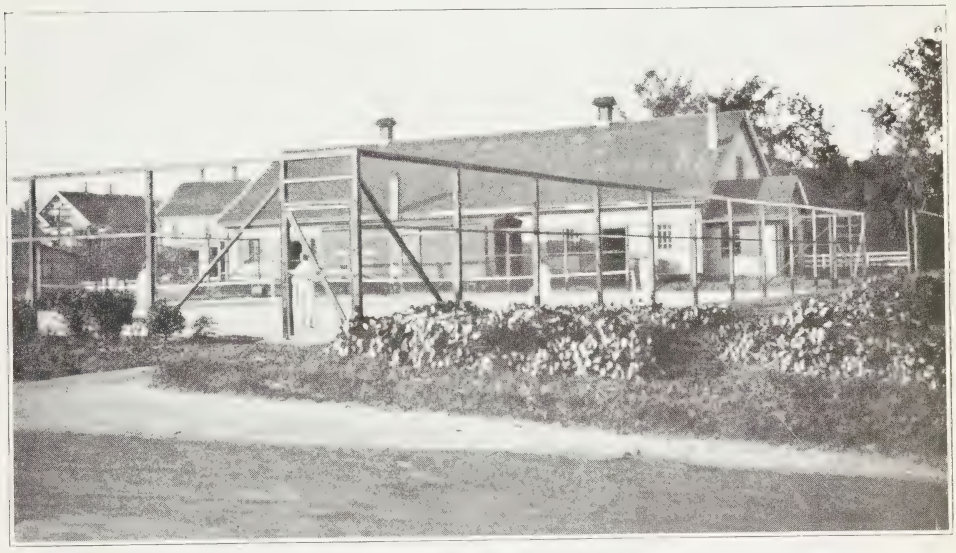
Up to April, 30, 1923, 434 returned soldiers had been settled in Nova Scotia, and loans had been granted up to $1,528,585. The average size of the Nova Scotia farm, as bought by the board, was 126·7 acres, and the price $28.43 per acre.

There are now in Great Britain and parts of the Empire many people with independent means of from $2,500 to $5,000 a year, whose income has been seriously curtailed by a 30 per cent minimum taxation and by a rise of 100 per cent in the cost of living. Large numbers of officers, military, naval and civilian, have also been taken off the active list or retired on a pension. For them it must be harder than ever to bring up a family. Good education at low cost may be within easier reach than before, but the openings in a crowded community grow fewer. Many such men are sure to emigrate to the division of the Empire that offers suitable inducements. This class of settler generally purchases a property, often a fruit farm, and employs labour to help him in developing it. To these the country life of Nova Scotia offering full play to rod and gun makes a special appeal.

Under the Act of 1912 the Nova Scotia Government may buy land, subdivide it, erect buildings, fence and prepare the land and sell to farmers in parcels.

By an arrangement with loan companies, money is advanced to the settler under a government guarantee. Where the loan company will agree to advance

40 per cent of the appraised value of the property, to an applicant wishing to buy or improve, the Government will, in approved cases, advance a further 40 per cent. The applicant must possess cash to the value of 20 per cent of the appraised value of the farm in addition to what he would require for house furnishing, stock, implements and family maintenance. Repayment is made by instalments on capital besides the interest, but these instalments may in certain cases be postponed for the first five years.



At Kentville. Apple-packing plant with tennis court adjoining

Both Dominion and Provincial Governments do much to aid the settler by the Agricultural Experiment Stations at Nappan, Kentville and elsewhere, by the Entomological Laboratory at Bridgetown, by Model Orchards and Illustration Stations, by freight arrangements, by wholesale purchase of stock, fertilizers, seed and tractors and by publications and free advice.

The 900,000 acres of Crown lands still ungranted have by an Act of 1922 been withdrawn from sale or lease.

MAXWELLTON DEVELOPMENT SCHEME, DIGBY COUNTY, NOVA SCOTIA

In the summer of 1922 at the instigation of the Nova Scotia Government an engineer from the Natural Resources Intelligence Service at Ottawa was instructed to make an examination of a tract of land at Maxwellton, Clare township, with a view to its development and settlement. The following is an extract from this officer's report. The nature of the country can be seen from illustrations in the text.

> "The area involved in the Maxwellton development scheme comprises a tract of unsettled or sparsely settled land about 54 square miles in extent adjacent to the Dominion Atlantic railway in Clare township, Digby county, Nova Scotia. It centres about the flag station of Max-

wellton which is 20 miles by railway south of Weymouth and 25 miles north of Yarmouth and about 5 miles in a direct line from the shore at St. Mary's bay.

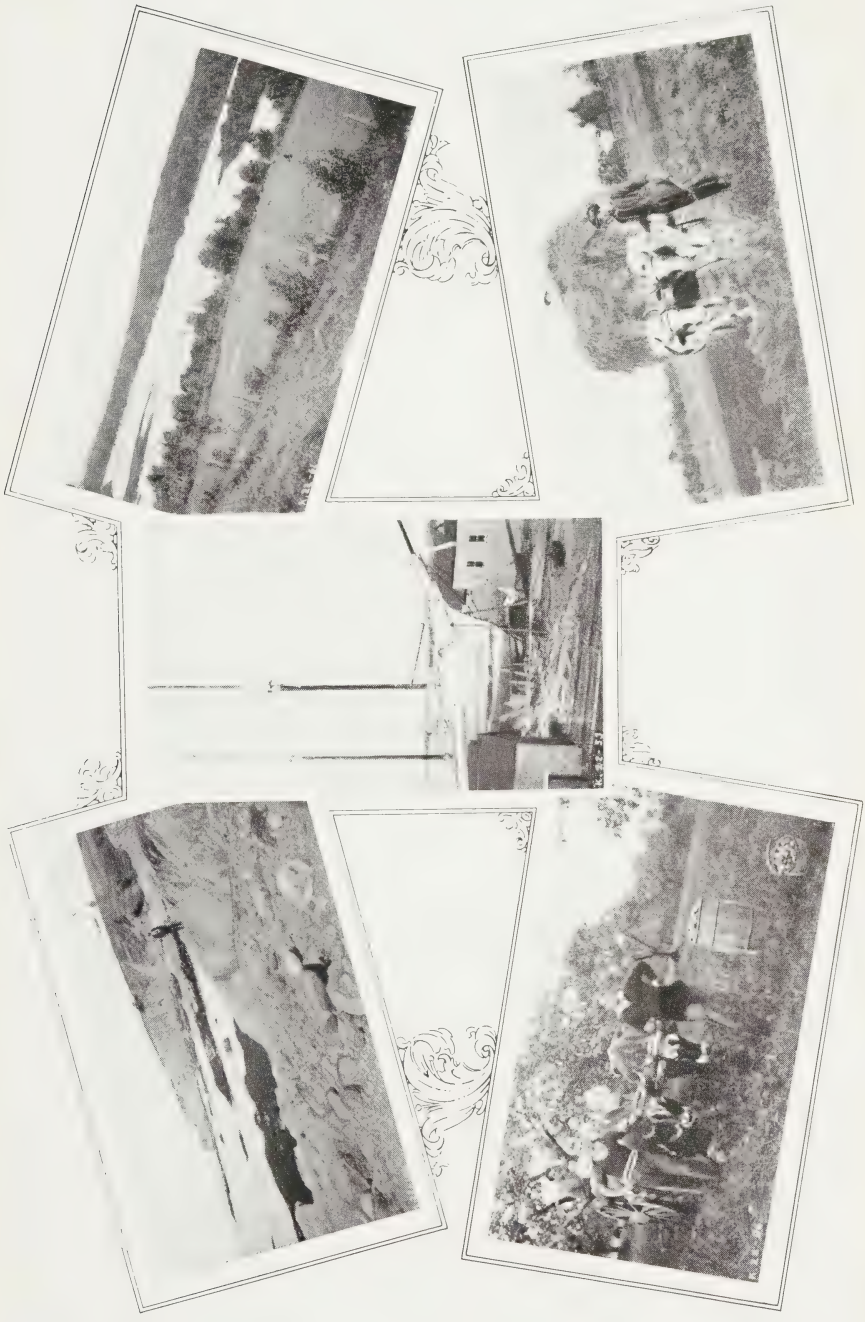
"The surface of this land is somewhat rolling and irregular, being broken by numerous low ridges intercepted by valleys containing networks of small lakes and streams. Though little rock in place is exposed the occurrence of surface stones is fairly general, especially in the valleys. The removal of these once for all for use as stone walls on the farm would present little difficulty.

"The district was primarily heavily wooded, the principal varieties of trees being hardwoods consisting of maple, birch, beech, and ash. Among the softwoods were spruce and pine. Much of the area has been logged over, leaving partially cleared lands that are utilized by the few settlers as pasture. A fair amount of good hardwood still remains but most of the softwoods, especially the pine, have been cut. The soil compares favourably with Nova Scotia soils in general and responds readily to cultivation and treatment.

"The climate of this district is the mildest found in Nova Scotia. Precipitation is ample but not excessive. The growing season is long and the winters are short. An ample supply of pure water for domestic and farm purposes is everywhere available and even small water powers have been developed here and there in connection with lumbering operations. Good well water is obtained at small depth everywhere.

"The Dominion Atlantic railway traverses the district from north to south with fully equipped stations at Meteghan and Hectanooga, a flag station at Maxwellton and a siding three miles south. Excellent shipping facilities are available at Yarmouth, Weymouth and Digby, all within a short haul by rail, so that major transportation services already exist. Good county roads surround the district but in order to open it up some 10 or 15 miles of new roads will be required internally in addition to improvements on a few miles of pioneer roads. Generally speaking, however, the public utilities necessary for the successful development of this district are already provided together with many amenities of civilization which are seldom found in new settlements.

"Of the 54 square miles investigated from reconnaissance surveys it was found that approximately one-third was covered by water. Of the land area about one-third is suitable for immediate cultivation, one-third for pasture and one-third might profitably be left as wood lots. This gives roughly 8,000 acres of land that could be immediately cleared and put to crop, with an equal amount of ready pasture that could be improved by seeding down, and a similar area of good wood lots. Allowing 150 acres as an average farm this district could be divided into 160 homesteads, providing for 160 families on the land and probably another 40 in various callings allied with such industry. With an average of 5 to a family these 200 families would add a population of 1,000 to Clare township, all of which could no doubt secure a competent living from the Maxwellton district."



SCENES IN MAXWELLTON DISTRICT, DIGBY COUNTY, NOVA SCOTIA

1. Cape St. Mary. 2. Hunter Lake. 3. Repairing Schooner at Meteghan. 4. Apples for cider mill. 5. Haying.

RAILWAYS

No spot in Nova Scotia being more than thirty miles from one of a hundred arms of the sea, railroad construction, towards which the Provincial Government offers a subsidy, is not pressing. The present mileage is 1,434.

The trunk line is the Canadian National Railway, owned and operated by the Dominion, with about 600 miles in the province. Halifax, the terminus, is 836 miles from Montreal. The eastward branch from Truro serves the mining and industrial regions of New Glasgow and Sydney, the trains being ferried across the strait of Canso at Mulgrave, where much of the fish is shipped in refrigerator cars for the western market.

Subsidiary to this division are various coal lines. The Dominion Coal Company ships in winter to the open harbour of Louisburg by its own line from Sydney. The Inverness Railroad and Coal Company starting from Broad Cove, on the gulf of St. Lawrence, follows the coast line past Port Hood and connects with the main line at Hawkesbury. The southern entrance of the Bras d'Or lakes at St. Peter connects with the Canso ferry by the Cape Breton railroad. From Halifax an eastward extension of the Canadian National Railway system opens up the Musquodoboit valley.

The western part of the peninsula is served by the Halifax and South Western branch of the Canadian National Railways (389 miles) and by the Dominion

The Canadian National Railways co-operate with the Nova Scotia Apple Grower

Atlantic (300 miles). The latter is controlled by the Canadian Pacific, which thus has an independent line from Truro through Windsor, to a point, Windsor Junction, 21 miles from Halifax. The Dominion Atlantic also extends from Windsor through the Annapolis Valley and Digby to Yarmouth.

From Yarmouth, the point of arrival of fast steamers from Boston (235 miles), the Halifax and Southwestern (C.N.R.) runs to Halifax. From Bridgewater in Lunenburg county a branch strikes across to Middleton in the Annapolis valley.

Here it crosses the Dominion Atlantic and runs parallel with it to Victoria Beach in Digby Gut.

It will be noticed that while there are three great lines connecting Middle and Western Canada with Moncton and St. John, from Moncton to Halifax there is only one line for the 186 miles, of which only a small part is double-tracked. This bottle-neck condition is being improved by additional double-tracking to meet the leaping and bounding needs of the ocean terminals and the long "Atlantic wharf," as Nova Scotia is called. Nova Scotia has the natural and, in winter, the necessary ports to serve it. Eastern Nova Scotia, again, having the only coal-field east of the prairies, must become a Canadian Newcastle or Pittsburg.

ROADS

A map showing the principal automobile routes and the points from which hunting and fishing resorts are accessible, and also the chief natural resources of the province, has been prepared by the Natural Resources Intelligence Service, Department of the Interior, Ottawa, and can be had on application.

Preparing material for the Goods Roads Movement in Nova Scotia

The "Official Road Maps" of the Nova Scotia Motor League is a good guide to the highways that encircle and traverse the whole province. The fee for membership in the N.S.M.L. is $5.

The Canada Highways Act allows the Dominion in co-operation with the provinces to contribute 40 per cent of the cost of highway projects. The total appropriation of $20,000,000 was made available in the five years ending March 31, 1924. The amount under the Act to which Nova Scotia was entitled was $1,468,720.00. In Nova Scotia 298·29 miles of highway have been thus built or rebuilt and agreements have been effected for the completion of a further 127·24 miles

With her abundance of Road Metal, Nova Scotia is building 425 miles of New Highway

LOCAL STEAMSHIP SERVICES

The Nova Scotia coast, the Bras d'Or lakes and the arms of the sea are served by twenty-five subsidized steamship companies, every place of any size on the shore being thus brought in communication with such distributing centres as Halifax and Sydney. There are six local services from Halifax east and west; the French Mail steamer runs fortnightly between Halifax and the St. Pierre and Miquelon islands, calling at North Sydney.

The Annapolis and Minas basins and Yarmouth have steamship connections with St. John, N.B.; the Canadian Pacific Railway runs a week day boat between Digby and St. John. Newfoundland is linked with Halifax by the Farquhar steamers, which calling at many points make an outward trip of 596 miles as long as navigation lasts. A week day steamship service is also operated by the Reid-Newfoundland Company between Port au-Basque, Nfld., and the Canadian National Railways terminus at North Sydney (101 miles). From Pictou a steamer crosses to the Magdalen Islands, and there are also semi-weekly services to Prince Edward Island.

SHIPBUILDING

Canadian shipbuilding dates from 1605 with the small vessels built at Port Royal (Annapolis) by Francois Gravé, Sieur de Pont, sailor from St. Malo. Seventy years later Intendant Talon's trading vessels are voyaging from Quebec to the West Indies and France—forerunners of those of the later triangular course—Canada to South America, Marseilles and return.

Shipbuilding after the fall of Louisburg dates from the launching of the " Pompey," 25 tons, at Yarmouth, N.S., in 1761.

The year 1833 is the famous seamark when the *Royal William*, capacity 363 tons, left Pictou on August 29th, and reached London in twenty-five days—the first ship to cross the ocean under no power but steam. Though this ship was built in Quebec, it was to Nova Scotia in the persons of the three Cunard brothers that the vision came. Steam power, however, was as yet a baby. In 1850 Mackenzie, of Pictou, astonished Glasgow with the *Hamilton Campbell Kidston*, the biggest sailing ship the Clyde had ever seen. About 1864 Nova Scotia was launching 300 vessels, and by 1880 Eastern Canada, building, sailing, owning and selling, had become one of the four greatest shipping districts of the world. For a period between these dates Canada headed the lists of tonnage in proportion to population.

It was not so much the use of steam that caused the decline as the change from wood to metal. Had Nova Scotia developed her metal industries a generation sooner, the 500 Canadian vessels built in 1875 would surely not have dwindled to 29 in 1900.

But the general substitution of steel for wood and big tonnage for small, the severe protective policy of the United States, and the free trade of Britain enabled the inherited experience of the Clyde and elsewhere to capture the market. Though there was a gradual recovery after 1902, it was not till the traffic and transport issues became acute in 1916 that production was speeded up.

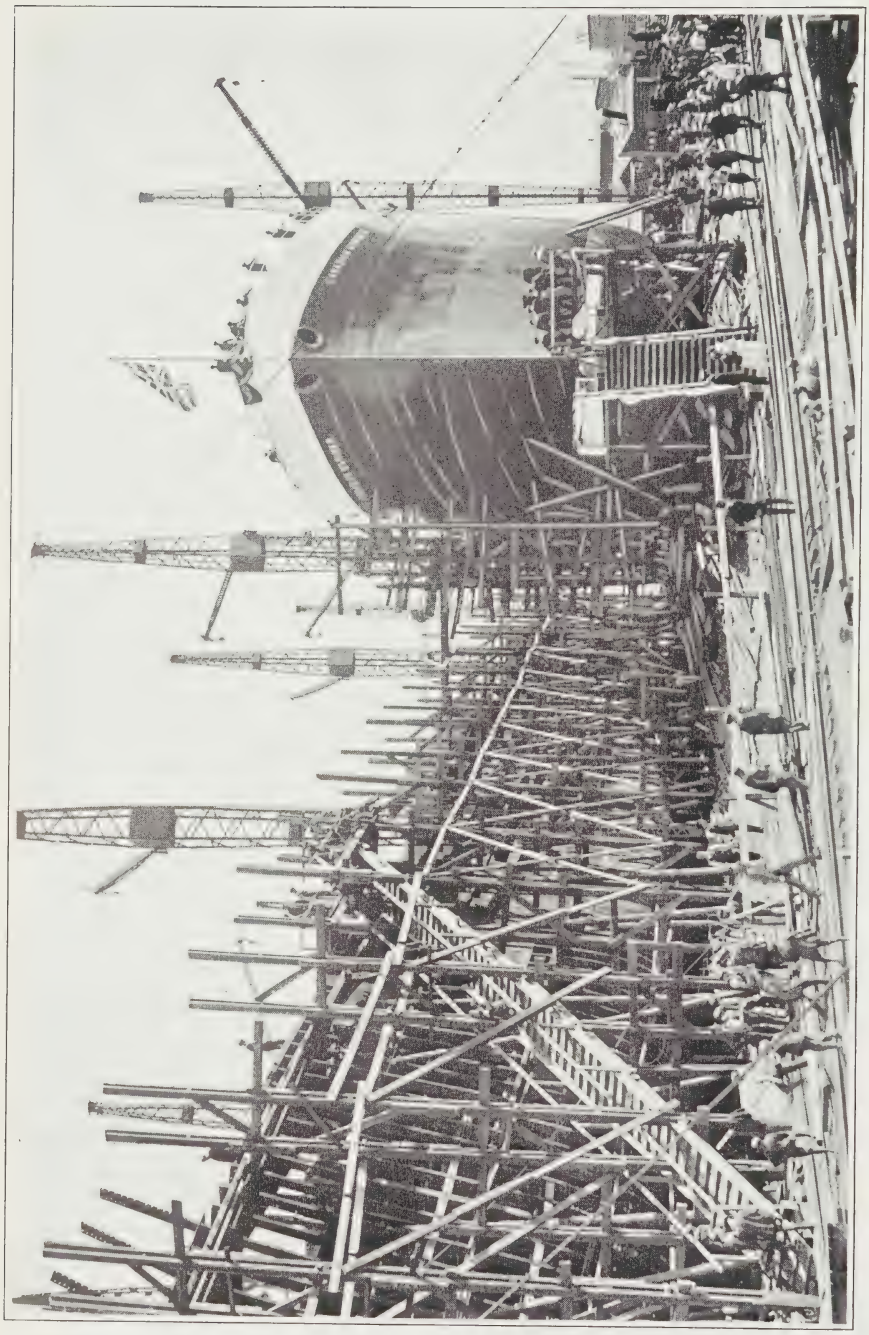
In 1916 sixty wooden vessels representing 12,000 tons had been completed, and the war had stimulated the yards to such full and effective work that in 1917 20,000 tons were completed without any Government aid to the builders.

The Report of the Nova Scotia Ship-building Commission in February, 1918, shows that at that time 27,500 tons of wooden ships were on the stocks, exclusive of fishing schooners and one munition steamer. This fleet consisted of sixty-six schooners, ten of which were four-masters, and they were being built at no less than forty small yards nearly all round the coast. It was clear that wooden-ship building could be safely left to Nova Scotian enterprise unaided.

The case of steel ships was different. Here large plants and capital were needed. Though for many years plates of fair size had been rolled at New Glasgow, the difficulty lay in securing the heavier plates, which were now scarce because of the Old Country demand and the vast shipbuilding programme launched in the States. The Admiralty Controller advised that "it would be of great service if arrangements could be made whereby ships' plates could be rolled in Canada," but without Government aid and the assurance of a continued demand the diversion from established products and the building of a heavy plant was beyond the power of existing companies. Arrangements were ultimately made with the Dominion Iron and Steel Company for production of heavy plates.

Meanwhile the Imperial Munition Board issued contracts for steel and wooden ships to cost $64,500,000, of which the Nova Scotia Steel & Coal Company at New Glasgow and the Halifax Shipyards Ltd., took $1,340,000. The latter company have a drydock at Halifax 560 feet long. The three above named companies have since been merged in the British Empire Steel Corporation, Ltd.

For the last few years the work of ship repairing has been at high pressure. Many of the freighters built on "rush" contracts were in need of a thorough



Building the Canadian Government Merchant Marine. The *Canadian Mariner* taking the water

overhaul and were waiting their turn for the limited repairing accommodation available both in Canada and the States.

Shipbuilding is more important in peace than in war; indeed, it is only by activity in times of peace that ships and especially crews can be ready to hand in the day of stress. Had it not been for the mercantile marine and a myriad of trawlers and seamen, the allied armies could not have been massed nor the allied nations fed. The American Ambassador in Great Britain has said: "There is no more glorious page in the history of the war than that contributed by their bravery and self-sacrifice in the face of known and constant danger, all the more terrible because it could not be foreseen. They made it possible to transport the armies of Britain and the United States to France and to provision them when there. They kept the commerce of the allied world alive and brought, not alone munitions to the troops, but food and fuel to the people of the allied countries. They are the men who defied and defeated the base iniquity of the German submarine campaign, and it is not too much to say that without their brave devotion the war would not have been won:" and the Admiral in command of the United States fleet, publicly declared that "without the British merchant seamen our army and navy would have been helpless." The share of the Maritime Provinces in this noble service is fresh in memory.

Nova Scotia lying in the most favoured spot of the largest of the great fishing areas of the world has from the first had boats and crews. Her fleet of fishing schooners is still growing; Lunenburg alone has 125; but to meet French enterprise on the Banks still more steam trawlers and fast fish-carriers from outside waters will be needed. The fishing fleet is the proper school for young seamen.

With cradles full of sailors, and craftsmen in every inlet, with the land on the edge of the sea packed with coal and with iron nearby, Nova Scotia could, herself, in time of need, both build and man a mercantile marine and save the Dominion a yearly normal freight bill of fifty million dollars.

(NOTE.—All ships of iron and steel building in the province and all machinery used in building the same are exempt from provincial taxation.)

CABLE AND WIRELESS STATIONS

"Our new Arachne, with steel web unfurled,
You catch the wondering whispers of the world."

The first transatlantic Marconigram was sent from the Table Head station near Glace Bay in 1902.

The Atlantic Cable stations are at Halifax, Canso and Sydney.

The Radio-Telegraph stations are these:—

Glace Bay, Louisburg — owned and operated by the Marconi Wireless Telegraph Co. of Canada.

North Sydney, Camperdown (Halifax), Cape Sable, Sable Island — owned by the Federal Dept. of Marine and Fisheries and operated by the Marconi Co.

Chebucto Head, Canso — owned and operated by the Dept. of Marine and Fisheries.

A wave-counter or undagraph is maintained at Chebucto head, and a seismograph or earthquake recorder at Dalhousie University.

BAY OF FUNDY TIDES

The highest tide in the Bay of Fundy is at Noel river, in Cobequid bay, where there is a rise above low-water mark of 31 feet at "neap" and 53 at "spring" tides. In the Maccan river which flows into Cumberland basin there is a tidal "bore" though not so high as that of the Petitcodiac river in New Brunswick.

The tides of the bay are of the "stationary" as opposed to the ordinary "progressive" type. Though the latter variety is not wholly absent, the great variation between high and low tide is due mainly to the oscillation of the body of water in the box-shaped bay. This oscillation approximates in periodic movement to that of the ocean tides and is due to the motion set up by them.

(*See* "Tides in the Bay of Fundy" in Geog. Review, April 1922, by H. A. Marmer, U.S. Coast and Geodetic Survey, and Geol. Survey Vol. VII, 1894, M. 10-21; and Vol. IV, 1888—9 N. 17.)

NOVA SCOTIA AND AERONAUTICS

In the spring of 1918 the Government decided to establish two aviation stations in Nova Scotia to increase the efficiency of the anti-submarine patrols on the Atlantic coast. With the assistance of the Imperial Government and the United States Naval authorities stations were opened in August at Halifax and North Sydney and continuous patrols were operated until the date of the Armistice.

With the advent of peace the submarine menace ceased, and, as there was no immediate necessity for further flying activities, the stations were partly closed. The forces engaged in this work were disbanded and the stations placed in charge of care and maintenance parties pending a decision as to a permanent policy in regard to air defence.

Subsequent to the formation of the Air Board in 1919, the Halifax Station was transferred to the new body and it was decided, as there was no immediate work to be done from North Sydney, to abandon that station. The station at Halifax has been maintained since then as a winter depot for operations in eastern Canada.

Up to the present there has been little outlet for civil flying in the Maritime Provinces. A few interesting photographic operations have been carried out from the station, including work on hydro-electric projects and the making of a mosaic of the St. Croix river which forms the international boundary between New Brunswick and Maine.

It is intended that Halifax shall be used as one of the four permanent stations for the Canadian Air Force. Here officers and men will undergo training in flying and other air force duties. This station is the only base in Eastern Canada where open water conditions are found during the winter months and its usefulness as a training base is therefore great. Machines from Halifax have been used for training in joint operations with the Naval and Military forces of the Dominion during the past two years and it is expected that an increasing use of this base will be made for such purposes.

(Contributed by the Secretary of the Canadian Air Force, Department of National Defence.)

Nova Scotia has a wonderful future for aerial operations. The east of Cape Breton island is a natural jumping-off place for transatlantic routes,

being, if we except Newfoundland, nearer to Europe than any other point in North America. Sydney is the apex of a triangle whose sides extend in an air line 644 miles to Montreal, 956 to Toronto, 602 to Boston, 784 to New York. Delivery of mails to or from ocean liners by means of airplanes at some point off the coast of Nova Scotia is easy to picture, and would save many hours in postal transit. Halifax should one day be a terminus also for aerial traffic with the West Indies to the benefit of their closer association with the Dominion.

INDUSTRIES IN WORKING

Of the 42,406 manufacturing establishments in Canada in 1920, Nova Scotia, ranking fourth among the provinces, was credited with 2,440. The capital invested was $148,194,530, and the employees were 28,342. The value of the products was $163,059,099. The average wage was $1,057.12.

Apart from the steel and iron manufactures centred in Cape Breton island and Pictou county, where the proximity of iron and coal ensures a busy future, the chief industrial towns are Halifax (including Dartmouth), Truro and Amherst. In these centres the main industries are chocolate, biscuits and confectionery, office and other furniture, textiles and clothing, hats and caps, condensed milk, paint, railway cars, oil and sugar refining.

The physical position of Nova Scotia, generally, offers great inducements to the industrial investor; it has a good share of waterpower, and abundance of coal, plenty of raw material and many fine harbours where that from foreign countries, e.g., sugar-cane, cacao, tobacco, cotton, rubber and oil can be laid down cheaply, and from which a whole fleet of ships built in the province can sail abroad.

INCORPORATION OF JOINT STOCK COMPANIES

Any three or more persons by subscribing their names to a memorandum of association may form an incorporated company with limited or unlimited liability for any lawful purpose (except to form a banking, loan, insurance or trust company).

Fees for incorporation are:—

(*a*) Where the capital stock is divided into shares:—

For $5,000 or less	$40
For $5,000 to $10,000	$50
For $10,000 and upward	$50
Plus $1 for every additional $1,000 up to	$50,000
Plus 50c. " " "	$200,000
Plus 25c. " " "	$1,000,000
Plus 15c. " " "	upward.

(*b*) When the capital stock is not divided into shares—

For 20 members or less	$ 50
For 20–100 members	$100

For 100 or more $100 plus $1 for every additional 50 members.
Fee for an unlimited number of members, $250.

Annual Registration Fees

Every company must be registered under the Domestic, Dominion and Foreign Corporations Act, and must file a statement annually.

Fees.—From $5 for a capital of $5,000 to $100 for $1,000,000 plus 10 cents for every additional $1,000.

Minimum fee for a foreign corporation, $200.

Minimum fee for a Dominion corporation, $150.

The Governor in Council may reduce the fee payable by a foreign or Dominion corporation according to the nature of the business and the amount of capital used therein.

TAXATION

Banks $250 to $1,000 plus $50 to $100 on each branch.

Loan and trust companies, telegraph, telephone, gas, electric and express, $250–$350.

Insurance companies, one per cent of their gross premiums.

In cities and towns a highway tax of one-tenth of one per cent.

In municipalities on land a personal tax of 40 cents on every $100 assessed.

Persons holding more than 500 acres pay one per cent.

LOCAL TAXATION

Nova Scotia is divided into local units of cities, towns, and municipalities. There are two cities (Halifax and Sydney), 41 towns, and 24 municipalities corresponding in name to the county divisions with the addition of Argyle (in Yarmouth and Clare), Barrington (in Shelburne), Chester (in Lunenburg), and St. Mary's (in Guysboro).

STATISTICS FOR YEAR ENDING DECEMBER 31, 1920

——	Ratepayers	Net Assessment	Rate per $100
		$ cts.	$ cts.
Cities—			
Halifax	18,000	42,701,700	2 87
Sydney	5,039	12,327,208	3 50
			Rate per $100 exclusive of Schools tax
Towns—			
New Glasgow	1,802	5,414,680	1 65
Amherst	2,435	4,913,165	2 60
Truro	1,587	4,327,900	1 90
Dartmouth	2,038	4,264,900	2 37
Glace Bay	1,408	4,233,740	3 35
Yarmouth	1,669	3,879,500	2 01
Sydney Mines	1,673	2,415,905	2 80
Trenton	640	2,303,056	1 90
North Sydney	1,463	2,270,350	2 45
Stellarton	1,287	2,121,340	1 90

(The other 31 towns are assessed below two million dollars). The rates for school purpose vary from 30 cents per $100 at Trenton to $4 at Joggins and Clark's Harbour.

STATISTICS FOR YEAR ENDING DECEMBER 31, 1920—Concluded

——	Ratepayers	Net Assessment	Rate per $100
		$ cts.	$ cts.
Municipalities—			
Annapolis	4,920	3,550,162	1 25
Antigonish	2,516	1,606,683	2 20
Cape Breton	5,926	3,590,115	2 25
Colchester	3,446	3,839,225	0 79
Cumberland	5,553	3,623,762	1 25
Digby	2,729	966,177	3 00
Clare	2,027	1,022,530	0 85
Guysboro	2,460	636,059	4 00
" (St. Mary's)	793	572,180	1 50
Halifax	7,200	4,534,946	1 40
Hants—East	3,404	1,756,306	1 15
" West	1,989	1,683,280	1 30
Inverness	3,959	952,085	4 02
Kings	3,862	4,495,695	1 00
Lunenburg	8,000	3,279,410	1 20
" (Chester)	1,675	799,290	1 10
Pictou	4,567	4,653,536	0 97
Queens	2,172	1,341,285	1 50
Richmond	2,181	943,800	2 53
Shelburne	1,266	522,920	1 96
" (Barrington)	1,598	538,129	2 28
Victoria	2,282	1,083,588	2 10
Yarmouth	2,033	1,612,575	1 20
" (Argyle)	2,031	877,200	1 40

The municipal taxation on industrial plants varies locally, some towns offering a bonus as an inducement to their establishment.

There is no provincial tax on industrial plants other than the fees imposed for registration of joint stock companies.

COST OF LIVING IN NOVA SCOTIA

Average weekly cost of twenty-nine staple foods for a family of five in June 1913, 1920, 1923:—

1913	$ 7 29
1920	17 04
1923	10 81

Average retail prices in Nova Scotia of staple foods in June, 1923:—

Sirloin steak	31·0c. per	lb.
Mutton (leg)	24·6 "	"
Lamb (leg)	33·8 "	"
Pork (fresh leg)	27·9 "	"
Bacon (breakfast)	37·7 "	"
Cod (fresh)	11·8 "	"
Lard (best)	23·7 "	"
Eggs (fresh)	34·2 "	doz.
Milk	11·6 "	qt.
Butter (creamery)	45·3 "	lb.
Cheese	31·2 "	"
Flour	5·1 "	"
Rolled oats	5·8 "	"
Rice (Patna)	10·4 "	"
Potatoes	31·0 "	(15 pound peck)
Strawberry and rasberry jam	$1.00 "	4-lb. tin

Sugar (granulated)	12·8c.	per	lb.
Tea (black in bulk)	63·2	"	"
Coffee (ground)	60·1	"	"
Raisins (seeded)	21·2	"	" (15 oz. pkt.)
Currants	25·1	"	"

Wood (stove per cord) $10.40 hard, $7.75 soft.
Coal (soft) per ton $9.00.
Rent of 6-room house with modern conveniences $22.30 per month.

(*Labour Gazette*, July 1923)

(Similar averages are published by the Dominion Department of Labour each month in the *Labour Gazette*).

FARM WAGES 1918 and 1922.

Summer months—						
Men.....1918	Wages	$41	Board	$19	=	$60
" 1922	"	31	"	19	=	50
Women.....1918	"	16	"	14	=	30
" 1922	"	16	"	13	=	29
By the year—						
Men.....1922	"	327	"	209	=	536
Women..... "	"	177	"	150	=	327

(*Bull. of Agric. Stat.* Feb. 1923.)

As a rule farmers do not keep help by the year excepting on the larger farms where there are tenant houses. Married men are given house rent free, also fuel (wood) and produce off farm but must supply their own house furnishings as also groceries and meat. Single men are provided with their board and lodging in addition to wages.

TRADES WAGES AND HOURS OF LABOUR IN NOVA SCOTIA IN SEPTEMBER 1921

	Per hour	Hours per week
	cts.	
Bricklayers	75	44
Carpenters	60 – 70	44 – 54
Technical workers	62½– 70	50
Painters	70 – 75	48
Plumbers	70 – 80	44 – 48
Stone cutters	75 – 95	48
Plasterers	75 – 95	44 – 48
Common labour in factories	35 – 55	50 – 54
Miners (contract)	$7.22 per day	8 hrs. per day
" (hand)	5.05 "	8 "

LABOUR ORGANIZATION

There were no organized Trades Unions in Nova Scotia in 1879. In 1921 there were 151 branches and, in 1922, 147 (82 reporting a membership of 12,716).

Of these trades union branches, 135 are international organizations and eleven "non-international"; there is also one with British affiliation.

The Trades and Labour Congress of Canada is the recognized legislative mouthpiece of organized labour in the Dominion. It works with the American Federation of Labour and is in affiliation with the International Federation of Trades Unions whose headquarters are in Amsterdam, Holland. It also exchanges delegates with the British Trades Union Congress.

The Trades and Labour Congress of Canada represents the organized workers of the North American continent on the governing body of the International Labour Office established under the League of Nations, of which the United States Government is not a member.

The Provincial Miners' Union, which in 1882 changed its name to the Provincial Workmen's Association, was probably the first trades union in Canada granting charters. In time a rival union was formed under the title "United Mine Workers of Nova Scotia" and in 1917 the two bodies combined under the name "Amalgamated Mine Workers of Nova Scotia." This new body has since been affiliated to the "United Mine Workers of America." There are (1922) 37 branches of the United Mine Workers of America in Nova Scotia. These are under the jurisdiction of District Union No. 26 which covers New Brunswick also. The number of members is understood to be 13,000.

Trades and Labour Councils are bodies of delegates representing branch unions in a district and designed to give expression to the views of the affiliated organizations. There are three Trades and Labour Councils in Nova Scotia, to which in 1921 there were affiliated 27 local unions representing 2,353, and in 1922, 17 unions were reported representing 1,145 members.

"Business agents" formerly known as "walking delegates" are maintained by the Longshoremen, Plasterers and Street and Electric Railroad employees at Halifax and by the Machinists at New Glasgow.

Trades union members in Nova Scotia number over 4 per cent of the present total for Canada, which in 1922 was 276,621 distributed in 2,512 branches, compared with the record year, 1919, of 378,047 in 2,847 branches.

Workmen's Compensation

An Act relating to workmen's compensation was passed by the Nova Scotia legislature in 1915 with subsequent amendments under which a state board administers an accident fund made up exclusively of compulsory contributions from employers grouped in classes and assessed according to the hazard of the industry.

Employment Agencies

By an Act of 1920, all private employment offices were abolished except those that may be exempted by an Order in Council of the Governor. No person or firm may receive directly or indirectly any fee for giving information regarding employers seeking employees or employees seeking employment, under a penalty of $10 to $25. The Department of Soldiers' Civil Re-establishment, whose district office is at Camp Hill, Halifax, is devoting special attention to the placement of returned soldiers and particularly of those in any way handicapped. This work is in process of being taken over by the Department of Labour of the Federal Government.

Women and Children

Following the recommendations of a commission appointed to report on hours of labour, wages and working conditions of women employed in industrial occupations, a "Minimum Wage Act for Women" was passed by the Nova Scotia legislature in 1920.

Child Labour

No boy or girl under 16 may be employed in a factory for more than eight hours in any one day nor for more than four hours on Saturday, and the same regulations apply in shops to boys under 14 and girls under 16.

No child under 16 may labour in any business whatever or street trade during school hours (9 a.m. to 3.30 p.m.) unless provided with a satisfactory school certificate.

No boy under the age of 16 may be employed in or about any mine for more than 54 hours in a week or for more than 10 hours in any one day except in case of emergency, and no boy under 16 may work in or about any mine without a school certificate.

Welfare Work

As an example of the increased attention paid to the welfare of employees in many countries for the last half century and especially in recent years, reference may be made to the Department of Industrial Relations formed by the Dominion Coal Company in Cape Breton Island in 1920. The Safety and First Aid Division reports all danger hazards, and organizes First Aid Classes which are attended in winter by some 300 men, of whom 250 in 1921 earned the certificate of the St. John Ambulance Association. It has also established First Aid Rooms at the various collieries and machine shops, with the latest hospital appliances needed for emergencies. The Employees Service Division engages a special inspector and attends to sanitary and cleaning up matters and improvement of conditions in the collieries, boarding houses and homes. The Employment Division makes it no longer necessary for men to spend days in travelling among the score of mines looking for work, but provides central bureaus of information.

TOWN PLANNING

The laying out of Sydney by the Royal Engineers in 1784 was probably the first case of town planning by the British in Canada.

The Town Planning Acts of the Nova Scotia Government (1915) make suitable provisions for all future urban and rural development in the province.

Under these Acts every local authority shall create a local board consisting of a mayor or warden and two other ex-officio members of the council, and not less than two ratepayers to be appointed by the local authority for a term of three years. This board shall appoint its executive engineer, who, with the board, shall be responsible for carrying out the provisions of the Act. All matters relating to town planning procedure shall be submitted to the Commissioner of Public Works and Mines.

The board must prepare a town planning scheme for lands within its area, or else a set of town planning by-laws.

The Acts provide for compensation but also provide that the local board can claim half of any increased value which is given to the property by the making or alteration of the scheme.

The planning proposed is largely of undeveloped areas, and, so far as relating to areas already built upon, it seeks to regulate voluntary reconstruction by the owner rather than make reconstruction necessary at the public expense. The essential object of the Acts is that the area shall be planned in advance of construction so that any development may work out in harmony with a well thought out scheme.

The reconstruction of Halifax became an immediate need after the catastrophe of 1917, but there are other places whose growth in the near future should not be disregarded. Such are the mining centres of Cape Breton and Pictou county. In New Glasgow, for instance, the industrial development of the last few years has created a need for a town planning scheme.

The Dominion Coal Company house about 15,000 people, renting some 2,500 five-room houses with garden lots to its workmen at low figures. Many of the houses are now occupied by the widows of the employees who were killed in the war.

FOREIGN TRADE

Halifax Harbour

There are on the Map of the Western Hemisphere certain ports destined for world trade and growth by a combination of fine harbourage and geographical position. Your finger points at once to New York, New Orleans, Rio de Janeiro, San Francisco, Vancouver and Halifax.

Historically, Halifax has had her share of world history since Colonel Cornwallis on June 21, 1749, sailed into Chebucto Bay on the sloop *Sphinx* and penned the despatch: "Our officers agree that the harbour is the finest they have ever seen." Its part in the Seven Years' war, in the wars with Napoleon, and in the war of 1812 as the British naval base in the North Atlantic is perhaps better known to most than its yet unwritten history in the years of the great war. Here fleets were assembled for the transport of Canadian, Anzac, U.S.A. troops and Chinese coolies. and it was no uncommon sight to see twenty to thirty ships leaving in one convoy.

Commercially, however, Halifax had to be content with her position as a coaling base and port of call, or with spasmodic West Indian or Atlantic coast trade, or with that more regular local commerce on the St. Lawrence river and gulf, until transcontinental railroads linked her with the west.

But times have changed since the *Royal William* in 1831 paddle-wheeled between Quebec and Halifax and since thirty-five days was good time to Liverpool. With the change to boats out of sight of land for four days only, and a dozen steamship lines freighting to all ports, Halifax began to take on the attributes of a modern port. In 1912 the Government planned the new ocean port for the Canadian National Railways and the connecting transcontinental lines.

Halifax harbour is a masterpiece of nature. The coast from Labrador southwards sunk until the ocean filled the hollow valleys and left here an inland basin connecting by "The Narrows" with an outer bay. This bay forms the

outside harbour, a mile square and 70 feet deep, siltless, free from troublesome currents and protected by islands at the mouth.

On the west side of this body of water the Government have secured 85 acres with a reserve of 115 to be obtained by reclamation. Here within the pierhead line 62 acres will be taken up by shipping, with twenty-seven berths for ships up to a limit of 700 feet, but prepared to accommodate ships of any size up to 1,200 feet. There is a depth of 45 feet at the piers at low water.

The five landing quays, 1,250 feet by 360 feet, connect with a new union passenger station, and grain elevators and a conveyor system will meet all

The Northwest Arm, the Inner Harbour of Halifax, from Halifax Tower

the needs of commerce. This great work known as "The Halifax Ocean Terminals" is not yet completed up to ultimate plans, but the units erected are in use every day. The expenditure so far has been $15,000,000.

Doubtless, also, Halifax will retain her claim to have the lowest port charges on the Atlantic coast.

COMPARATIVE TABLE OF DISTANCES FROM HALIFAX AND NEW YORK TO SIX TRADE CENTRES

To	Miles from Halifax	Miles from New York
Liverpool	2,450	3,100
Pernambuco	3,451	3,678
Rio de Janeiro	4,611	4,748
Montevideo	5,586	5,723
Buenos Aires	5,701	5,838
Cape Town	6,423	6,786

Sydney Harbours

Sydney harbours being in the heart of the coal fields are destined in time to have a full share of Canadian trade. The drift-ice which blocks the entrance in certain winds is troublesome for two months only. The entrance from the ocean is three miles wide, its length of five miles narrowing to one-half mile between two protecting bars, where the mean depth is 39 feet (l.w.s.t.). North Sydney harbour lies one-half mile within this narrower entrance. The channel to North Sydney is 36 feet deep and more than a mile wide, and from North Sydney to Sydney 40 to 45 feet deep and three-quarters of a mile wide. At Sydney piers the present depth of 30 feet on a mud bottom could be rapidly dredged to 40 feet if needed.

Sydney harbour has an area of 15 square miles and a depth of full forty feet; it has miles of good foreshore owing to the projection of the land, fog is almost unknown and, being a natural harbour, there are at present no charges for maintenance. The pilotage charge for a 7,000-ton vessel is $80.

STEAMSHIP COMPANIES TRADING TO AND FROM DIFFERENT PORTS IN THE PROVINCE OF NOVA SCOTIA (as for February, 1923)

Destination	Starting Point	Ports of Call	Companies	Service
Liverpool or London, Glasgow, Cardiff, Swansea.	Halifax (winter).	.....	Canadian Govt. Merchant Marine.	Regular
Liverpool or Southampton.	St. John.....	Halifax.....	Canadian Pacific Steamships, Ltd	"
	British port.....	"	White Star-Dominion.	
	"	"	Cunard-Anchor-Donaldson.	
Plymouth, Cherbourg, London.	.....	"	" "	
Liverpool or London, Manchester & Hull.	St. John. N.B., and Halifax.	St. Johns, Nfld...	Furness Withy & Co.	Regular
Australia and New Zealand.	London, England.	Halifax (winter), Auckland, N.Z. Wellington, N.Z. Lyttleton, N.Z. Dunedin, N.Z. Melbourne, Aust Sydney, Aust.	New Zealand Shipping Co.	Monthly (outward service only).
" "	Halifax (winter)..	.....	Can. Govt. Merchant Marine.	
Brazil and River Plate..	Halifax.....	Buenos Aires, Montevideo and other S. American ports.	Can. Govt. Merchant Marine.	Regular
West Indies and South America.	Halifax.....	Barbados, Trinidad, Demerara.	Can. Govt. Merchant Marine.	Winter
	Halifax.....	Bermuda, Barbados, Trinidad, Georgetown. (Demerara).	Royal Mail Steam Packet Co. (Pickford & Black, Halifax Agents).	Once in 14 days, alternate Fridays.
			" "	

STEAMSHIP COMPANIES TRADING TO AND FROM DIFFERENT PORTS IN THE PROVINCE OF NOVA SCOTIA—*Concluded*

Destination	Starting Point	Ports of Call	Companies	Service
South Africa	Montreal St. John (winter).	Halifax Capetown, Port Elizabeth, East London, Durban.	Elder Dempster & Co.	Monthly
Newfoundland	N. Sydney or Louisburg.	Port aux Basques or Placentia.	Reid Newfoundland Co.	Daily in summer, (tri-weekly in winter).
"	Halifax		Can. Govt. Merchant Marine.	
"	N. Sydney		Farquhar S. S. Co.	Saturdays
"	New York	Halifax and St. Johns, Nfld.	Red Cross Line	Tuesdays
B. Honduras	Halifax (winter)	Hamilton, Nassau, Kingston.	Can. Govt. Merchant Marine.	Every three weeks.
India, Straits Settlements and Dutch E. Indies.	Halifax (winter)		Can. Govt. Merchant Marine.	Occasionally.
Montreal	Montreal	Charlottetown, P.E.I., Sydney, C.B. St. Johns, Nfld.	Canada SS. Lines	Summer service
Liverpool	Sydney, C.B.		Can. Govt. Merchant Marine.	Occasionally.
Nova Scotia and Newfoundland.	New York	Halifax, St. Johns, Nfld.	Red Cross Line	
Jamaica (Kingston)	Halifax	Santiago de Cuba, Turk's Islands.	Pickford & Black, Halifax.	Monthly
"	"		Can. Govt. Merchant Marine.	Every three weeks
Havana, Cuba	Halifax	Havana	Can. Govt. Merchant Marine.	Regular

NOTE.—The Report of the Dominions Royal Commission recommends the development of the route from the British Isles to New Zealand and Australia via Halifax, Bermuda, Jamaica, Panama Canal and Tahiti, calling special notice to the fact that to make Halifax the Canadian port of call would only add 400 knots to the direct transoceanic route to Colon.

THR BRITISH WEST INDIES AND BRITISH GUIANA

The development of Preferential Trade with the West Indies and of the direct steamship service on which this trade relies concerns Nova Scotia perhaps more than any other province of the Dominion.

The present conditions of trade with the West Indies are these:—

1. The agreement published in 1920 between Canada and most of the British West Indian colonies, but subject to the approval of the Canadian

Parliament, of the legislature of each of the colonies concerned and of the Secretary of State for the Colonies, came into force on September 21, 1921, and remains so for ten years, or for longer if not terminated by due notice. The parties to the agreement are Canada, British Honduras, British Guiana and all the British West Indies excepting Bermuda. The main points are these:—

As a general principle goods being the produce of any of the British West Indies are to be entitled to a preference not exceeding 50 per cent of the duty imposed on similar goods imported into Canada from foreign countries.

Special duties are stated in the case of sugar, cocoa-beans, lime-juice, arrowroot, grape fruit and rum. Limes, cocoanuts and onions are to be free.

Goods being the produce of Canada and imported into the British West Indies are also granted a preferential tariff varying among the different islands from 50 per cent to 90 per cent of the duties imposed on similar goods imported from foreign countries. Special duties in the case of flour, spirits, wine and ale.

It is reciprocally provided that on six months' notice by either party the products of either may be entitled to preference only if conveyed by ship direct.

2. A subsidy is paid to the Royal Mail Steam Packet Company of $340,666 a year for a fortnightly service between Canada, the West Indies and British Guiana, the whole amount being paid by the Dominion. In the three years ending March 31, 1921, passengers were carried by this line to the number of 15,819, and freight to the value of $24,402,716.

3. Steamers of the Canadian Government Merchant Marine also make Halifax their winter port as a starting point for the Bahamas, Barbados, Bermuda, British Guiana, Havana, British Honduras and Trinidad.

4. The West Indies already take 90 per cent of the Nova Scotian cured fish and there is a constant demand for such products as Nova Scotia does or could produce, viz., flour, butter, cheese, condensed milk, potatoes, apples, hay, white pine and spruce, hardware, chairs, paper, canned goods, sulphate of ammonia and bunker coal, machinery and many manufactures, live stock. Ships on their return should carry full cargoes of goods which Canada imports heavily and which the West Indies produce, viz., sugar, molasses, rice, bananas and oranges, lime-juice, cocoa, coffee, greenheart and logwood, cotton, oil, asphalt, spices and rubber, or of goods which the West Indies could produce or do produce now in small amounts, viz., tea, tobacco, rum, coffee, sago, lemons, pineapples, diamonds, honey, oil.

Trade from Eastern Canada, if it were to follow the line of least resistance or cheapest freight rate, could flow to the West Indies as readily as to the western provinces, for Toronto and Montreal could ship to Trinidad at less cost than to Winnipeg, and to Halifax or St. John at less than half the cost, the freight rate being about the same as to United States ports. Montreal is nearer to Trinidad than to Vancouver, and Halifax nearer to British Guiana than to Brandon.

Nova Scotia is fortunate in having the West Indies and its multitude of magic isles within cheap and easy access. The palmy days of the sugar trade may return and enterprise find innumerable fields ranging from the staple products of the tropics to pearl-oyster beds, sponge gardens and turtle farms.

In times when conditions are elastic for a readjustment of trade relations and a re-grouping of the component parts of the Empire, it is well to remember that the West Indies with its first rate harbours in Antigua, S. Lucia and Grenada are on the way to Panama and South America, and form a natural bridge for the passing to and fro of Canadian commerce.

Even free trade with the West Indies need not disturb existing economical relations, for the products of Canada and of the West Indies are clearly divided, each producing what the other cannot. With free trade, Canada would not need to pay a toll of some $10,000,000 a year for produce obtained from the West Indies through the United States.

British Guiana.—Valuable as is the trade with the West Indian region in general and capable as it is of indefinite development, special attention may be directed to British Guiana as the richest and perhaps the least known of any tropical part of the Empire, whose trade may in time prove of particular importance to Canada.

The staple products of British Guiana are or will be rice, sugar, coffee, cocoa, cotton, bauxite and rubber. In 1921 the export trade to Canada amounted to $9,085,108, and the imports from Canada to $3,594,118. As long ago as 1913 there were seventeen and a half million pounds of rice exported generally and a much higher acreage was being planned. In the forests Para rubber trees are indigenous, and the soil, climate and rainfall are ideal for their growth.

The hardwood "greenheart" of British Guiana owing to its resistive power in submerged work has been used in the Suez and Manchester ship canals and in the making of the dykes of Holland.

In twenty-five years 2,287,234 ounces of gold have been mined and in 1913, 75,479 diamonds were exported. The bauxite mines could supply all the needs of Canada for aluminium ore in place of the mines of Arkansas and Georgia.

There are at least 7,000,000 acres of lowlands, requiring drainage and dykes, but rich in potash and suitable for sugar, and besides these there are millions of acres of fertile land available for settlement.

A herd of 160 cattle brought from Brazil increased in twenty-six years to 10,000 in the great savannah region of 3,000,000 acres. These lands are suitable for cotton and tobacco. Banana planting is now in progress.

The water-powers of the colony are abundant, but so little was known about them in 1916 that the Imperial Committee could say nothing except that the "falls of Kaieteur" were said to form perhaps the finest untouched water-power of the Empire. They have since been included in a National Park of 320 square miles.

Canada's imports from the British West Indies, British Guiana, Bermuda and British Honduras rose in value from $7,689,357 in 1914 to $14,458,119 in 1922, and the exports from $5,511,453 to $13,415,151.

The trade with Jamaica has been handicapped by the more regular service from and to the United States of America, but improvement in the Canadian service and the advantage of the preferential tariff may reduce the very large percentage of trade now in their hands.

It is considered that a direct service of steamers between Eastern Canada and Mexican Gulf ports would do much to develop a trade other than imports of crude petroleum.

TRADE WITH MEXICO, CENTRAL AMERICA, SOUTH AMERICA AND THE WEST INDIES OTHER THAN BRITISH

Trade with the South American and Central American republics, and with the possessions of France and Holland in the West Indies and the Americas has increased of late years, and should grow in proportion to more direct communication.

Freight from Eastern Canada has in the past been shipped as a rule via Boston, New York, or even via Liverpool (England), but trade routes direct from Canada are being opened up by the Canadian Government Merchant Marine.

The imports from these countries in the year ending March 31, 1923, amounted to nearly $29,000,000, and the exports from Canada to about $14,000,000. Those countries taking exports above one million dollars were, in order of trade value, Cuba (4 millions), Argentine ($2\frac{1}{4}$), Brazil (2), and Porto Rico ($1\frac{1}{3}$). Those sending imports to Canada were: Cuba (13 millions), Peru (7), San Domingo (4), Argentina ($2\frac{1}{3}$). The imports from Cuba and San Domingo were almost entirely sugar; those from Peru, sugar and crude petroleum.

NOTE.—In considering statistics of trade between Canada and the West Indies and the Americas, it must not be forgotten that many large imports such as bananas, asphalt and nitrate from Jamaica, Trinidad and Chile, respectively, are credited to the United States, and not to the country of origin. The value of these three items alone amounted to $6,307,918 in the year ending March 31, 1922.

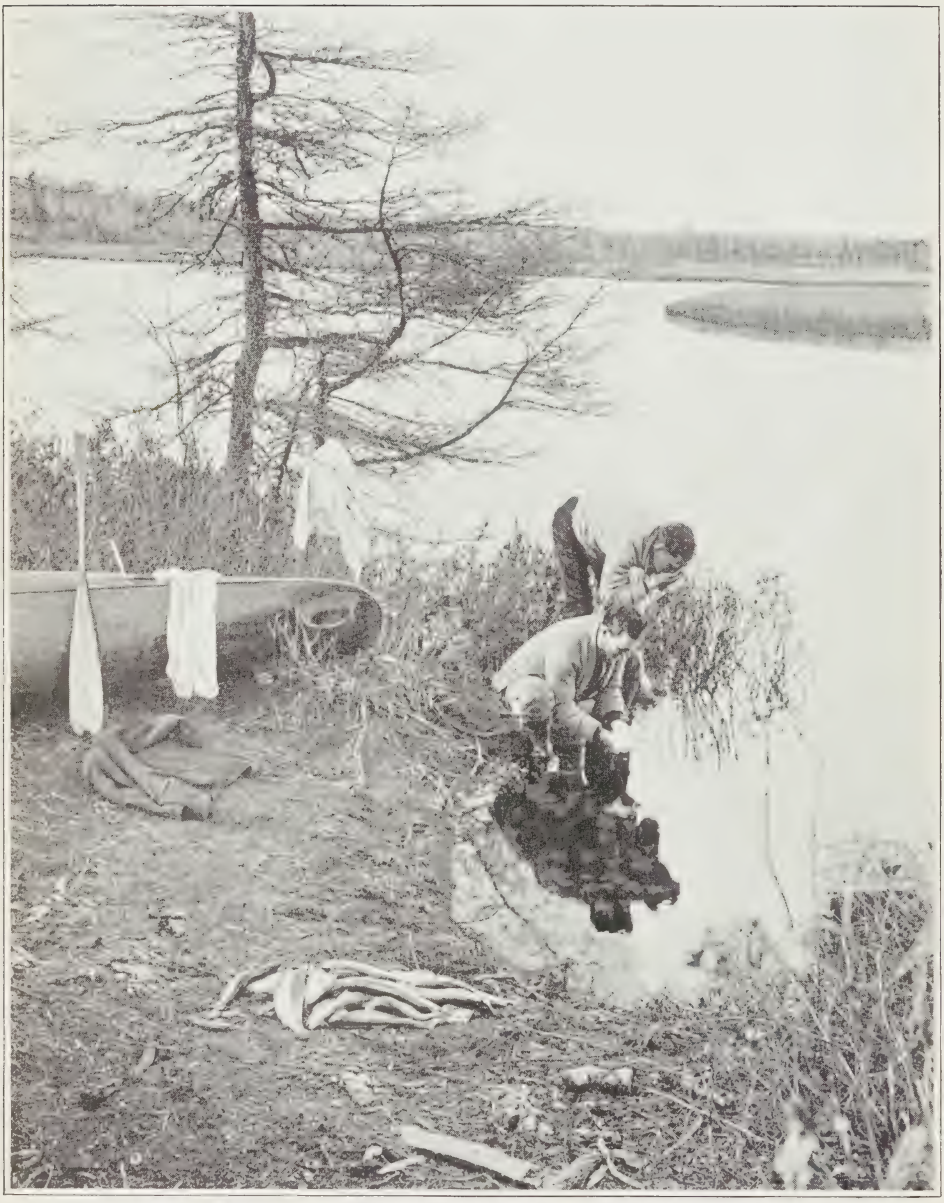
A supplement to the *Commercial Intelligence Journal* published by the Department of Trade and Commerce, Ottawa, gives full information as to ocean transfer, credits, exports, competition, packing, language, precaution and other facts without knowledge of which no exporter is likely to succeed.

Canadian Banks in West Indies, South America, etc.

A considerable increase of recent years in the number of branches of Canadian banks is an indication of an increasing volume of trade. In the West Indies the Royal Bank of Canada has 93 branches, the Colonial Bank (representing the Bank of Montreal), 26, the Bank of Nova Scotia 19, and the Canadian Bank of Commerce 5. In South America the Royal Bank has 13 branches, and the Bank of Commerce 2. In British Honduras the Royal Bank has a branch at Belize.

South African Trade

The Dominion Government pays a subsidy of $146,000 to the Elder-Dempster Company for a monthly service to South African ports. In 1921 goods were exported by this line to the value of $4,082,959. These steamers call at Capetown, Port Elizabeth, East London and Durban, but carry no cargo inward from South Africa to Canada. Under the contract Halifax is a port of call for more than half the year from the starting points of Montreal or St. John.



A Holiday Jaunt in Nova Scotia

FISHING, SHOOTING AND RECREATION

To those who look for fish and game, Nova Scotia offers unusual sport and abundant variety. Thanks to wise government protection of fish, bird and beast, the country is now well stocked with moose, caribou, deer, hare, raccoon, geese, ducks, ruffed grouse, woodcock and snipe, salmon, ouananiche, brook trout, sea and lake trout, swordfish and tuna.

Fish

Nearly all the large streams in Nova Scotia abound with salmon and trout. Surface salmon fly-fishing begins late in April in rivers like the Tusket, Clyde, Medway, Indian, Musquodoboit, Sheet Harbour and St. Mary's, and continues in the Cheticamp, Margaree, etc., in Cape Breton island, until mid-September. For the Margaree (Inverness), St. Mary's (Guysboro), Musquodoboit (Halifax), Medway (Queens) and Tusket (Yarmouth), fishermen take up quarters at

Kedgemakoodge Lake, a Fishing and Shooting Retreat in Queen's County

Baddeck, Sherbrooke, Musquodoboit Harbour, Mills Village, and Kemptville, respectively. Liverpool, in Queens county, is a good starting point for the Mersey river system with its 600 square miles of watershed, which by connecting Rossignol, Fairy lake, and Fisher's lake, provides a good combination of canoeing and trout fishing with access to the fine game country to the north. Grand lake in Halifax county is a special place for the gamey land-locked salmon (ouananiche).

Brook trout may be taken from April 1 to September 30. In the southwest counties April, May and September are the best for trout fishing, the absence of cold springs and brooks tending to make the water too warm in July and August.

Tuna

To land a giant leaping tuna with rod and line is no mean feat and done by few, though tried by many. The record fish, weighing 760 pounds, was caught at Great island near Port Medway, Queens county, by the guide L. D. Mitchell. Port Medway is also good for salmon and swordfish. Tuna fishing is an attraction also at Lockeport and in Cape Breton at Mira bay, St. Ann bay, reached by water from Sydney, and at Arichat.

The Swordfish

This fish, which may weigh 600 pounds, is harpooned while basking on the surface. When struck by the harpoon the line attached to a buoycask thrown overboard holds him till his dangerous struggles are over. This exciting sport can be had at the interesting old French settlement of Arichat, at Port Medway, at Halifax and St. Peter's bay, where the short canal admits boats into the Lower Bras d'Or lake.

Moose, Caribou, etc.

One of the best centres for moose, salmon, sea trout, and brook trout is Sheet Harbour, which is reached by a steamer from Halifax or by a 28-mile drive from Upper Musquodoboit, a point on the Canadian National railway. Another good centre for bear, moose, deer and trout is Kedgemakoodge or Fairy lake. Here are the headquarters of the Rod and Gun Club, with club house, log cabins and cottages for sportsmen and tourists.

Moose are to be found in all counties outside Cape Breton and Richmond. Amherst, Caledonia, Halifax, Guysboro, New Glasgow or Truro are all rendezvous within easy reach of moose-land, and, as the law allows each hunter to shoot but one, the bag of 1,361 in 1921 and an average of 1,314 for the five previous years are proof that they are plentiful.

The caribou grounds in the northern part of Cape Breton island are reached by a drive from Baddeck to Big Intervale, or by steamer from Sydney to Ingonish. On the mainland caribou are rare.

There are close seasons for all game; the kill of woodcock is limited to ten per day and the pheasant is protected at all times. A license fee is paid by non-residents of from $15 to $40 (all game) and can be obtained at the office of the Commissioner of Forest and Game at Halifax.

NOTE.—Details as to accommodation, guides, game laws, licenses and localities are to be found in "Hunting and Fishing," published by the Game Commissioners of Nova Scotia, or in "Out-of-Door in the Maritime Provinces," published by the Canadian National Railways.

Yachting and Flying

The Royal Nova Scotia Yacht Club at Halifax and the Royal Cape Breton at Sydney are well known to yachtsmen, as are also the yacht builders at Dartmouth, Port Hawkesbury, Shelburne and La Have. The Bras d'Or lake and the Little Bras d'Or lake, fiords or arms of the sea, entered by narrow channels, are the places of all places for sailing and motor-boats.

Nova Scotia is particularly adapted to the use of hydroplanes owing to its well protected harbours and its network of inland lakes. The Bras d'Or

lakes are memorable as the nest where the hydroplane was hatched. These are the surfaces on which Graham Bell and Baldwin made their first experiments and it was at Baddeck on February 23, 1909, that J. D. McCurdy, a Cape Breton man, made the first flight in the British Empire in a machine heavier than air.

Anglo-Celtic contributions to civilization and vitality are "bounded on the east by Magna Charta and on the west by the week-end," and if a Rocky

Up-to-date Portaging for Tourists in Nova Scotia

Mountain Aviation Company can lease a seaplane harbour near Banff and allow flying visitors to view the Rockies, why may not a like enterprise, with base on Bras d'Or, reveal from the sky the charms of the sea-girt Acadia and L'île Royale?

SUMMER VISITORS AND TOURISTS

That certain places attract foot-loose men and families for their summer outing is positive proof that they are healthy and accessible, and either beautiful, interesting or exciting.

The summer playground of Nova Scotia meets all these needs. Fast steamers from Boston to Yarmouth and Halifax and the Red Cross line from New York to Halifax, the daily boat from St. John, N.B., to Digby, through sleepers on trains between Boston and Halifax and on two transcontinental railroads bring a still growing summer population to New Scotland, where in certain parts Gaelic is a second language, and, not to speak of scenery in many ways comparable, such names as Loch Lomond or the Creignish hills are echoes from beyond the Tweed.

The "Green Acadian mountains with sylvan rivers among them" have, thanks to the New England poet, been so widely advertised as the "Land of

Evangeline" that the story of the little French maid has drawn and still draws a main stream of tourist travel to the Annapolis valley. But now in addition to the lines of railway detailed on another page so many new roads have been opened and so many old ones improved that the "gypsy car" style of travel along highways and byways in all parts of the province is in favour.

Taking Halifax, Yarmouth and Digby as starting points in the southwestern part of the peninsula, pleasant summer resorts are dotted along the railroads and motor roads that encircle it, and within easy access of others that cross from the Atlantic to the bay of Fundy are lakes strung together by streams that offer all that canoeist or angler can ask. On the Atlantic coast lie the well known resorts of Hubbard and St. Margaret's bay, Chester with its Hackmatack Inn, Mahone bay, Lunenburg, Bridgewater, Liverpool and Shelburne, and the

The Fairy Valley of the Gaspereau, near Wolfville

picturesque coast between Pubnico and Yarmouth. On the bay of Fundy side is Weymouth, facing which is Digby neck broken by the Petite Passage; on the Annapolis basin are Digby, Deep Brook and Annapolis Royal, the first permanent settlement of Europeans in Canada; on the Basin of Minas, Wolfville and Grand Pré:—names well known to visitors as refuges from the heat of big eastern cities in the United States.

The less known scenic coast east of Halifax is opened up by a coast road which crosses Sheet Harbour and turns north over the St. Mary river on its way to Antigonish and Port Mulgrave Ferry.

The island of Cape Breton has remarkable points of beauty and interest. In the Bras d'Or lake district are Baddeck, Whycocomagh, Grand Narrows and the lake road from St. Peter's to Sydney. A trip from Sydney to Louisburg, varied maybe by the pretty trip up Mira river from Mira gut, passes through the famous coal field of Cape Breton to the ruins of what was once the most

St. Paul's Island, off the Cape Breton Coast. A popular Summer Resort

Ingonish, Cape Breton Island, one of Nova Scotia's picturesque Atlantic Bays

powerful fortress on the western hemisphere. In the northern counties of the island on the road from Whycocomagh to Cheticamp are the fine fishing regions of lake Ainslie and the Margarees, and whether by sea or highroad it is not more than a day's pleasure run to cover the distance from Sydney by Ingonish to the wild grandeur of Cape North.

Historic Sites

The "Historic Sites and Monuments Board" of Canada, aided by the local Historical Societies is saving for the province and the nation many of the vivid scenes that carry back the present to the past—the old French Forts Piziquid, Gaspereau and Beausejour, Port Royal, and Louisburg, from 1720 to 1758 the Gibraltar of the north, whose stones cry out the names of Louis XIV and Vauban, Pepperell and Wolfe.

A Remnant of Louisburg Fortress, one and a half centuries after three years' work of demolition by the Royal Engineers

THE MIGRATORY BIRDS CONVENTION ACT, 1917

This Act, which runs for at least fifteen years, is designed to preserve insectivorous birds in the interest of agriculture, and wild fowl in the interest of food supply and health-giving sport.

The yearly damage to crops in Canada by the pests which are birds' natural food has been estimated at many million dollars. The great auk, the passenger pigeon, the Eskimo plover and the Labrador duck are already extinct, but the Act may save the whooping crane, the wood duck and other birds nearing extermination.

Summary of the Act

1. *Birds protected continuously throughout the year.*—
   (*a*) All migratory insectivorous birds, viz.: bobolinks, catbirds, chickadees, cuckoos, flickers, fly-catchers, grosbeaks, humming birds, kinglets, martins, meadowlarks, nighthawks, or bull-bats, nuthatches, orioles, robins, shrikes, swallows, swifts, tanagers, titmice, thrushes, vireos, warblers, wax-wings, whip-poor-wills, wood-peckers, and wrens and all other perching birds which feed entirely or chiefly on insects.
   (*b*) All migratory non-game birds, viz.: auks, auklets, bitterns, fulmars, gannets, grebes, guillemots, gulls, herons, jaegers, loons, murres, petrels, puffins, shearwaters and terns.
2. *Birds protected continuously throughout the year for ten years.*—
   (*a*) Shorebirds or waders: avocets, curlew, dowitchers, godwits, knots, oyster catchers, phalaropes, plovers, sand pipers, snipe, stilts, surf birds, turnstones, willet, wood cock, and yellow legs. (NOTE.—Woodcock, Wilson or Jack snipe may be shot in Nova Scotia from October 1st to November 30th; greater and lesser yellow legs, black breasted and golden plover from August 15 to November 30). (All dates inclusive.)
   (*b*) band tailed pigeons, little brown sandhill and whooping cranes, swans and curlew.
3. *Birds protected continuously throughout the year until Jan. 31st, 1924.*—
   Wood duck and eider duck.
4. *Migratory game birds protected except in an open season.*—
   Water fowl (brant, wild duck and geese), rails (coots, gallinules, sora and other rails), pigeons (doves and wild pigeons). The open season for geese and brant in Nova Scotia is from September 15 to December 31. In Yarmouth and Shelburne counties ducks and rail may be shot from October 15th to January 31st, and in Shelburne and Queen's counties geese and brant for the same period.

Except that Indians and Eskimos may at any season take the food (and their skins for clothes) *no eggs or nests of migratory birds may be taken at any time* except under permit from the Commissioner of Dominion Parks, Ottawa, for purposes of science or propagation. Permits may also be issued to kill protected birds if proved to be doing serious injury to agricultural or other interests.

Penalties

(a) *For violation of Act:* Fine of from $100 to $500 besides costs or three to six months' imprisonment, and confiscation of guns, boats and appliances.

(b) *For interference with game officer* in discharge of his duties, including right of search or for refusal or falsity of information, a fine of from $10 to $100, or imprisonment up to six months, or both.

ADDRESSES FOR SPECIAL INFORMATION ABOUT NOVA SCOTIA

Agent General for Nova Scotia.—Mr. John Howard, 57A Pall Mall, London, S.W.

Agricultural Societies.—Mr. F. L. Fuller (Superintendent), Halifax, N.S.

Dairying.—Mr. W. A. Mackey (Superintendent), Halifax, N.S.

Farmers' Association.—Mr. C. R. B. Bryan (Secretary), Truro, N.S.

Forests and Game Commissioner.—Mr. T. A. Knight, Halifax.

Fruit Farming.—Mr. M. K. Ells, Secretary of the Nova Scotia Fruit Growers Association Port Williams, N.S.

Poultry.—Mr. J. P. Landry (Superintendent), Truro, N.S.

Superintendent of Dominion Experimental Farms.—
Mr. W. S. Blair, Kentville, N.S.
Mr. W. W. Baird, Nappan, N.S.

List of Unoccupied and Uncultivated Lands.—Natural Resources Intelligence Service, Ottawa.

Improved Farms in Eastern Canada.—Canadian Pacific Railway, Montreal, Que.

Industries and Immigration Department.—Mr. W. B. MacCoy, K.C. (Secretary of the Department), Hollis St., Nova Scotia.

Mineral Resources.—Deputy Commissioner of Mines, Mr. T. M. Brown, C.E., Halifax.

General Passenger Agent for Canadian National Railways.—Moncton, N.B.

Trade Inquiries.—
Department of Trade and Commerce, Ottawa.
Mr. Harrison Watson, Canadian Trade Commissioner, 73 Basinghall St., London, E.C., England.
Secretary of Board of Trade, Halifax, N.S., Mr. E. A. Saunders.
Heaton's Annual, 32 Church St., Toronto, Ont.
" Opportunities in Nova Scotia.
" Canada in the Building.

Water Powers.—
Secretary of Nova Scotia Water Power Commission, Halifax, N.S., Mr. K. H. Smith, Chief Engineer.
Dominion Water Power Branch, Department of the Interior, Ottawa.

Technical Education.—Mr. F. H. Saxton, Halifax.

Addresses for the use of Returned Soldiers and other settlers.—
1. Land Settlement Board, Secretary, Roy Building, Halifax, N.S.
2. Pensions, 405 Dennis Building, Halifax, N.S.
3. Department of Soldiers' Civil Re-establishment, Camp Hill, Halifax, N.S.
4. Employment Offices at Amherst, Halifax, New Glasgow, Sydney.
5. Hostel, Y.M.C.A. Hostel, Barrington Street, Halifax.
6. Soldier Settlement Board of Canada, St. John, New Brunswick.

Any inquiry regarding the natural resources of Nova Scotia or other provinces of Canada may be addressed to the

SUPERINTENDENT,
NATURAL RESOURCES INTELLIGENCE SERVICE,
DEPARTMENT OF THE INTERIOR,
OTTAWA.

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1923

MAP OF
NOVA SCOTIA
Scale of Miles
25 0 25 50
PRINCE EDWARD ISLAND
GULF OF ST LAWRENCE
NORTHUMBERLAND STRAIT
BAY OF FUNDY
ATLANTIC OCEAN
Magdalen Is
St John
Charlottetown
Summerside
Pugwash
Malagash
Springhill
Parrsboro
Amherst
Tatamagouche
River John
New Annan
Londonderry
Pictou
Trenton
New Glasgow
Westville
Stellarton
Truro
Inverness
Port Hood
Baddeck
Sydney
Glace Bay
North Sydney
Ingonish
Cheticamp
Antigonish
Heatherton
Canso
Guysborough
Sherbrooke
Goldenville
Musquodoboit
Dartmouth
Halifax
Windsor
Kentville
Wolfville
Annapolis Royal
Digby
Yarmouth
Shelburne
Liverpool
Lunenburg
Bridgewater
Caledonia
New Germany
Milton
Barrington
Lockeport
Weymouth
Meteghan
Church Point
Maxwelltone
Hectanooga
Kemptville
Tusket
Argyle
Pubnico
Clarence
Middleton
Auburn
Canning
Wilmot
Berwick
Bridgetown
Torbrook
Aylesford
Deep Brook
Victoria Beach
Granville
Port Royal
Brier I
Bear River
Digby Gut
Digby Neck
Long Island
Tusket Is
Mahone Bay
Chester
Hubbards
Tangier
Oldham
Elmsdale
Enfield
Shubenacadie
Stewart
Sunnybrae
Pictou Landing
Merigomish Harbour
Caribou I
Caribou Mines
Moose R
Fall River
Waverley
Bedford
Goldboro
Isaac Harb
Country Harbour
Whitehead
Arichat
Louisburg
Sydney Mines
Glace Bay
Table Head
Coxheath
Christmas
Orangedale
Grand Narrows
Iona
Baddeck
Middle River
Port Hood
Inverness
Cheticamp
Big Intervale
Ingonish
Aspy Bay
North
Scatarie I
Mira Bay
Bras d'Or Lake
Whycocomagh
George Bay
Pt Mulgrave
Judique
Broad Cove
Riviere Bridge
Lake Milton
Medway Port
Medway Head
Port Medway
Port Joli
Port Mouton
Port Hebert
Port Latour
Pubnico
Tusket
Yarmouth
Argyle
Shelburne
Barrington
Lockeport
Liverpool
Milton
Lunenburg
Bridgewater
Caledonia
New Germany
Chester
Windsor
Hantsport
Kentville
Wolfville
Annapolis Royal
Digby

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